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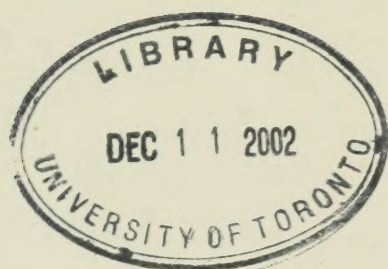
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ORIGINAL ARTICLES.

INSECTS IN RELATION TO DISEASE.*

By R. M. BUCHANAN, M.B., F.R.F.P.S. GLASG.,
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UNTIL within a period limited by the lifetime of most of the members of this Association the actual cause of nearly all the communicable diseases was unknown. The pioneer work of Pasteur opened this great field of investigation to an ever-increasing army of workers, and discovery followed discovery in quick succession, so that to-day there are few of those diseases in which the causative agent continues to baffle research. When such a discovery is made new lines of investigation are at once presented; the life-history of the causative agent, the manner of its spread from the sick to the healthy, and its power of producing disease become engrossing subjects of study and research for men representing all departments of biology and medicine.

It is along one of these lines of investigation that I have the honour and privilege of conducting you for a brief space

* Popular lecture delivered at the opening of the Forty-first Congress of the Incorporated Sanitary Association of Scotland, 1st September, 1915.

to-night, and showing the important part which insects are capable of playing, and have been found to play, in the spread of disease.

It is a remarkable fact that the sinister influence of a relatively small number of insects in spreading some of the most deadly diseases has only come to light in the course of the past ten to fifteen years. We now know that a few species of insects have controlled the destinies of nations, and made parts of the world well-nigh uninhabitable. Mosquitoes, for example, by their agency in the spread of malaria, have seriously opposed, and are still opposing, the march of civilisation in the tropics. They have hindered the agricultural and industrial development of Italy and Greece. By spreading both malaria and yellow fever they held up for a time that stupendous engineering scheme, the Panama Canal, taking a terrible toll of valuable life. The tsetse-flies have carried sleeping sickness over the tropical area of Africa. Parasitic insects have a heavy list of ills recorded against them, including plague, typhus, and relapsing fever, although much investigation has still to be done to make clear the actual mode of transference of the infection in these diseases. To this list must be added the house-fly, which is credited with a share in the transmission of the intestinal diseases, typhoid fever, infantile diarrhœa, dysentery, and cholera.

When we speak of the spread of disease we really mean the spread of the infective or causative agent of the disease; in other words, that living thing which passes from the sick to infect the healthy, and which is commonly spoken of as a germ. Germs, like all other creatures, are possessed of definite form and size, and have their entrances and their exits on the stage of life. They are so minute, so elementary, that they occupy the lowest place in the scale of life both in the vegetable and animal kingdom. Those belonging to the vegetable kingdom are known as bacteria, and cause most of the epidemic disease in this country; whilst those belonging to the animal kingdom, and called protozoa, are responsible in tropical and sub-tropical countries for some of the most destructive diseases of mankind. In contributing to the spread of disease insects play the part of an intermediary, manifesting their activities, generally speaking, in one of two ways: they may carry mechanically upon or

within their bodies, in consequence of their feeding and breeding habits, material containing infective bacteria and transmit it to man, commonly through his food; or they may inoculate, by means of biting mouth parts, infective bacteria or protozoa previously acquired in the course of feeding upon the blood of man or of some of the lower animals suffering from disease.

For the illustration of the first of these modes of carrying infection I have selected the common house-fly, and for the second the biting tsetse-fly.

THE HOUSE-FLY (*Musca domestica*).

The common house-fly (Fig. 1) may be said to be the most widely distributed insect known. It is the animal most commonly associated with man, and has followed him the world over. Like most other insects, it presents many features of great interest in its structure and development, but it has gained an evil reputation from the part which it plays as a disturber of comfort and a disseminator of disease. Man's familiarity with the house-fly appears to have bred contempt of it, for until recent years very little exact knowledge of its life-cycle and its habits had been recorded. We are indebted to Newstead, Hewitt, Howard, Austin, and Graham-Smith for their very complete records of the life-history and for their careful studies, especially of the insect's breeding and feeding habits.

The number of flies in every part of the world is dependent upon the existence of conditions suitable for their development, and it may at once be said, that the whole problem of the house-fly as a nuisance and as a menace to health hangs around its processes of breeding and feeding. A full appreciation of the problem and of the means of its solution rests on an intimate knowledge of these processes. It will therefore be our first duty to make ourselves acquainted with the development of the fly from egg to adult, with the structure and function of certain parts of its body, and with its habits of feeding.

Development from egg to adult.—An insect does not begin its separate existence as a replica of its parent; it only reaches maturity after undergoing certain definite changes of form. The progeny of the house-fly in the course of their life-cycle

pass through four well-defined stages of development, recognised as the egg, the larva or maggot, the pupa or chrysalis, and the imago or perfect insect. The eggs are deposited with all the appearance of conscious foresight in substances that will provide food for the young. The substances selected by the parent fly are legion, and are determined by the fact that the larva is essentially a vegetable feeder. The material is usually of the nature of fermenting vegetable matter in accumulations or heaps exposed to the light, and supplying warmth and food for the hatching of the egg and the sustenance of the young. It is not surprising, therefore, that the chief breeding places are to be found in horse manure or stable refuse, after which there come other forms of manure, excrement, and rotting or decaying animal or vegetable substances.

A fly lays from 120 to 150 eggs (Fig. 2) in a single day, and in its brief lifetime may deposit as many as four batches. The egg takes from eight hours to three days to hatch into the larva or maggot. The young worm-like larva as it issues from the egg is about a twelfth of an inch in length (Fig. 3); it at once becomes active and voracious, and grows rapidly and attains a full length of half an inch (Fig. 4). The higher the temperature the more expeditious the hatching; thus at 75° to 95° F. it takes eight to twelve hours, at 60° to 70° F. it takes about twenty hours, and at 50° F. it takes two or three days. This larval stage is completed under the most favourable conditions of temperature and food supply in five to eight days, although it may be prolonged six to eight weeks where conditions are less favourable. It then crawls away from its moist surroundings in search of a dry and sheltered spot preparatory to entering upon the next stage of pupation. At the beginning of this stage the body contracts, assumes a cylindrical form, and becomes quiescent. In a few hours the skin forms a sheath, and changes from yellow to red, and finally to dark reddish-brown (Fig. 5). Within this protecting sheath, or puparium, as it is called, like an infant in swaddling clothes, the future fly undergoes rapid development, and emerges as the imago or perfect-winged insect in three to seven days under the most favourable conditions. In less favourable conditions this stage may last two to four weeks, or even longer. It may be noted in passing that in this process of emergence the insect presents

an astonishing and grotesque appearance. In the middle of the head there is a bladder-like sac known as the ptilinum, and when this sac is inflated it protrudes from the forehead, pushing the eyes widely apart (Fig. 6). The successive inflation and deflation of the sac enables the fly to lever itself out of the puparium, and subsequently provides a means whereby it can, if necessary, overcome obstacles to its progress and force its way upwards through superimposed rubbish or manure to the open air. The sac disappears after serving this temporary purpose.

The successive stages from the egg to the emergence of the winged insect will be seen to cover eight and a half to fifteen days at shortest, and eight to twelve weeks at longest.

A further period of fourteen to eighteen days is required for the imago or perfect insect to reach the stage of egg laying, and so to complete the whole life-cycle.

The complete life-cycle of the house-fly thus occupies three to four weeks at shortest, and ten to fifteen weeks at longest. The various stages may be conveniently set forth in tabular form.

TABLE SHOWING THE TIME OCCUPIED IN THE DEVELOPMENT OF THE HOUSE-FLY THROUGH ITS VARIOUS STAGES.

	Shortest Time.	Longest Time.
1. Ovum or egg, . . .	8 hours.	3 days.
2. Larva or maggot, . . .	5 to 8 days.	6 to 8 weeks.
3. Pupa or chrysalis, . . .	3-4 to 5-7 days.	2 to 4 weeks.
<i>Time required from the egg to emergence of the winged insect, .</i>		
	$8\frac{1}{2}$ to 15 days.	8 to 12 weeks.
4. Imago or perfect insect		
—to reach egg-laying,	14 days.	18 days.
<i>Time required for the whole life-cycle, .</i>		
	3 to 4 weeks.	10 to 15 weeks.

The breeding season of the house-fly is important, as it coincides with the period when certain diseases prevail. If conditions are favourable as regards temperature and food, the female house-flies will deposit their eggs and the larvæ will develop at any time of the year. But such conditions will only be found in warm stables, restaurants, and kitchens. Under

ordinary circumstances the breeding season in this country extends from June to October.

Structure.—The body of the house-fly exhibits the typical insect form, but it will only be possible to touch upon certain points that enable us to identify the insect and that have a bearing on our subject. By looking closely at the top of the head a ready means of distinguishing the sexes will be found, for the large, prominent, compound eyes are close together in the males and wide apart in the females; the space between the eyes in the male is about one-fifth of the width of the head, whereas in the female it is about one-third. This is a feature of sex differentiation that is common to many other insects. The difficulty of stalking a fly is apparently related, not so much to the prominent compound eyes, with their thousands of facets, as to the fact that on the crown of the head are three simple eyes set in a triangle. This trio of simple eyes or ocelli appear to be of supreme visual importance to the fly in enabling it to escape destruction.

A feature which readily distinguishes the common house-fly from other house-frequenting flies is the pattern formed by the so-called veins of the wing. The veining of the wings is a very constant characteristic of insect species, and each vein and space is named and numbered by entomologists. Suffice it to say that vein 4 does not run straight to the wing margin in the last part of its course, but takes a sudden bend upwards to form an angle, and terminates contiguous to vein 3 just before the tip of the wing. In other flies closely resembling the house-fly this vein runs in a comparatively straight line, or in a smoothly rounded curve. Experience will also enable the observer to distinguish the house-fly by the angle made by the wings when at rest.

From the point of view of the spread of disease, the legs, and particularly the feet, also claim our attention, for their numerous bristles and spines and mat of fine short hairs give them ideal germ-carrying powers (Fig. 7). Each foot has five segments or joints, and the terminal segment is provided at its tip with a pair of movable claws and a pair of membranous flaps (pulvilli) by which it is enabled to walk over polished surfaces and upside down. In walking, the legs are moved three at a time, a front

and a hind leg on one side advancing simultaneously with the mid-leg on the other side. This tripod poise gives ideal security.

At one time it was thought that the transmission of infection by the house-fly had reference chiefly to the external parts, but it is now recognised that the alimentary system is of greater importance. The alimentary tract shows the same divisions as in other animals of mouth, pharynx, œsophagus, stomach, and intestines (Fig. 8). As an illustration of adaptability of structure to function the mouth parts of the house-fly are unique. They form a proboscis entirely suctorial in its function,

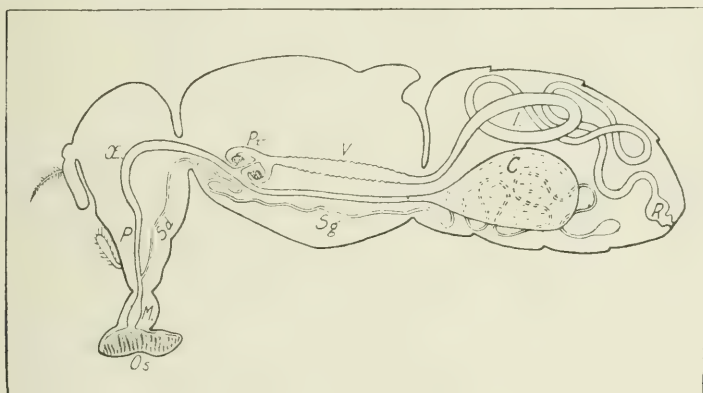


FIG. 8.

Diagram of proboscis, alimentary canal, and salivary gland of the house-fly.

O.s., Oral sucking organ. *M.*, Mouth. *P.*, Pharynx. *Æ.*, Æsophagus.
P.v., Proventriculus. *V.*, Ventriculus. *I.*, Intestines. *R.*, Rectum.
S.d., Salivary duct. *S.g.*, Salivary gland. *C.*, Crop.

and devoid of any of the lancet-like parts such as the blood-sucking flies have for piercing the skin. Its functions are inspecting, moistening, drinking, and swallowing. It also filters off and rejects the larger particles in the fluids on which the fly feeds. When not in use it is held doubled up in the hollow under the head.

The only other structures which claim special notice at this time are those relating to the process of feeding. The mouth cavity is represented by a cylindrical tube occupying the first half of the proboscis, and passes into the muscular sucking organ or pharynx. From the pharynx a thin-walled tube,

representing the œsophagus or gullet, runs first upwards and then backwards through the head into the thorax. Here it divides into two tubes, the one long and passing backwards into a crop occupying a large space in the abdomen, the other short and passing into a small valved cavity called the proventriculus, which, in turn, is continued as the stomach or ventriculus. The stomach lies entirely in the thorax, and merges into the intestine, showing a number of characteristic turns and bends. Two very important pairs of glands complete our survey; the one, of great length, passes from the abdomen forward through the thorax to unite in one duct in the neck and open into the mouth; the other pair lie close to the sucker, into which their duct opens.

Feeding habits.—The feeding habits of the house-fly are to be seen and experienced daily. It flits from food to food, but few realise the manner of its feeding. The process of feeding has been carefully watched and recorded by Graham-Smith. Fluid is drawn up through the proboscis, and, passing through the pharynx and œsophagus, goes direct to the crop. The proboscis being adapted for suction of food in liquid form, dry substances such as sugar are attacked by the fly liquefying them with its own salivary secretion. The crop appears to act as a receptacle, easily and rapidly filled, and capable of carrying a food supply for some days, or even as a reservoir for storage when food is scarce. When feeding continues after the crop has been fully distended, the proventricular valve may be opened to allow the food to go directly to the stomach and intestine. After a meal the contents of the crop are gradually passed on to the stomach and intestine, and some of the fluid may be regurgitated through the proboscis. When the crop is gorged the fly frequently stops in its movements to clean its head, proboscis, legs, and wings, and exhibits this latter phase of regurgitation in the digestive process—a phase that has much significance from the point of view of the spread of disease. Thus, while sitting still, say, on a window pane, a drop of fluid will be seen to exude from the proboscis and to increase in size till it is about the size of the insect's head (Fig. 9). After some time the drop is indrawn or deposited on the glass. When deposited on the glass these drops dry and give rise to round stains or spots which have a

quite definite form and with which every one is familiar. Should the food of the fly contain disease-producing organisms, the fluid regurgitated from the crop will contain them, and they will be found in the spots and on any dry food substance attacked by the fly. When we examine the pane of glass more closely it will be seen that there is another type of spot due to faecal deposit; it is round, opaque, and usually yellowish-brown or white, and may contain any disease germs which the fly has swallowed with its food.

The relation of the house-fly to the spread of infection.—The house-fly has long been suspected as a disseminator of disease, but while the possibilities in this direction are now well understood, there are few instances in which the carriage of infection has been directly or definitely proved. It would not be surprising if an insect bred in materials comprehensively designated as filth should emerge from such a nidus bearing the germs of disease both inside and outside its body.

The evidence against the house-fly as a disseminator of disease is strongest in relation to typhoid fever. In the United States the house-fly is believed to play such an important part in the spread of typhoid that the name "typhoid fly" has been very generally applied to it. But the evidence so far, not only in the United States, but in other parts of the world where typhoid is prevalent, is mainly circumstantial. Exact bacteriological proof is difficult to obtain in the majority of outbreaks. The typhoid bacillus cannot originate in the fly; the insect simply acquires the germ from some article soiled by a typhoid patient or by contact with the patient's excreta. It is easy to show by experiment that flies constantly carry and distribute intestinal bacteria derived from human excreta, and it is a natural inference that when opportunity offers they will also carry the bacillus typhosus.

From India a number of records have been published strongly supporting the belief that flies spread the disease, and these records are substantiated by the marked improvement which followed the extermination of flies. This was also partly due to a better system of trenching the night soil, by which the breeding of flies was prevented, and partly to the elimination of so-called typhoid "carriers." It is frequently found that

certain typhoid patients continue to excrete the bacillus typhosus in the urine or fæces after, sometimes many years after, recovery. Such persons are known as "carriers," and they may constantly excrete the bacillus, or only do so at intervals. Numerous cases, and even extensive outbreaks, have been traced to those apparently healthy "carriers." Flies may obtain the infection from the dejecta of such cases just as readily as from an acute case. The epidemics of typhoid in the military camps of the Spanish-American and South African wars proved many times more deadly than the enemy's bullets. The evidence of fly-borne infection in these camps is supported by circumstantial evidence that it is impossible to gainsay.

Summer diarrhoea of infants, dysentery, and cholera, like typhoid, are intestinal diseases, and, also like typhoid, the specific germ leaves the body of the sick in the excreta. These diseases are therefore just as likely to be carried by flies as typhoid. The evidence of fly-borne infection in these diseases has been obtained by the same methods. It is very convincing, both circumstantially and experimentally, but still requires a critical attitude.

In Egyptian ophthalmia and other eye diseases the house-fly and the lesser house-fly have ideal opportunities for the spread of the infection. There is probably no disease in which the circumstantial evidence appears to be more conclusive than in Egyptian ophthalmia.

In the case of anthrax, it has been repeatedly shown that the bacillus of anthrax (Fig. 10) will pass through the alimentary canal of flies. It has also been demonstrated that flies carry anthrax bacilli on their feet from diseased carcasses (Fig. 11).

Flies are also regarded as potential carriers of such diseases as plague, tuberculosis, and small-pox, the infective material of these diseases being readily accessible to the peripatetic house-fly and its occasional fly associates.

Remedial measures.—There is no natural check on the prolific breeding of the house-fly that can be looked upon as sufficient to control the fly nuisance. Organised preventive measures

are necessary. They are easy of application and full of promise—so full of promise that, if competently and universally applied, the house-fly would become a rare insect. A crusade against flies must aim at prevention rather than destruction, and must be applied against the insects in the early stages of their existence. The injunction, "Kill that fly," implies a confession of failure in sanitation. Further, unless accomplished by such means as fly traps, fly papers, or fly poisons, it is a disgusting habit to inculcate in the youth of the nation. What is really wanted is a knowledge of the conditions under which the fly breeds and its prodigious progeny are enabled to pass through the various stages of development. Sweep these away and you will have no flies to endanger the public health or disturb the individual comfort. Let scavenging be done with knowledge behind it, not by rule of thumb or by the dictates of convenience, and the fly will disappear. It is not necessary to labour details of preventive measures: suffice it to say that the timely collection and destruction of domestic refuse and garbage, the removal of vegetable accumulations, and the stringent enforcement of measures dealing with stable manure are all essential to success. All such removal must be accomplished at intervals well within the period necessary for the development of the egg of the full-grown insect. The shortest period necessary for this purpose being about eight and a half days, the removal of all temporary collections of fermenting matter should be undertaken at intervals of not more than seven days. There may be other considerations of ordinary cleanliness and sanitation which require the removal of house refuse at more frequent intervals, as daily, or, at most every three or four days. In the summer time the removal of manure is called for weekly in urban communities.

Enemies of the house-fly.—If the house-fly has a prodigious progeny, it has at the same time many destructive enemies. Of these enemies man is the chief when he takes the trouble to put his knowledge to practical use, especially in destroying or in removing the insect's breeding places. The pupal stage offers a tit-bit to fowls, and vast numbers are exterminated in this way. These are what may be called incidental enemies; the

fly has also natural enemies, and the most notable and destructive is the parasitic fungus *Empusa muscæ*. So far as is at present known, this is the only serious disease to which the adult fly is subject.

In the late summer and autumn the disease prevails as an epidemic, killing off great numbers. It is undoubtedly a powerful agency in the control of house-flies, so much so that attempts have been made to grow the fungus artificially in order that it might be used as a means of fly extermination. In many fly-infested houses which I have visited the dead flies were seen on bed curtains and fancy shelf papers, sometimes in hundreds, and to a much less extent on walls and windows, unless where the former surfaces were not available. On close inspection of one recently dead, it is seen to be stuck to the surface by its proboscis in a life-like attitude (Fig. 12). The abdomen is distended, and ringed black and white, an effect produced by the growth of the white fungus outwards between the black segmental plates (Fig. 13). The outgrowing fungus presents under the microscope the appearance of serried ranks of tubes, each with a terminal spore in the shape of a dome (Fig. 14). On reaching maturity the spores are shot off to varying distances in such number as to form a white deposit around the body of the fly, a condition very characteristically seen on a window pane, for example. By placing a diseased fly on the stage of the microscope the ejection of the spores will be seen to resemble a miniature bombardment as they flash across the field. The spores stick to whatever they touch, and will also be found adhering to the setæ in bunches and covering the wings (Fig. 15). The manner in which the fungus gains entrance to the body of the fly is not definitely known, but it permeates the entire body, even the legs and antennæ. It may be that the infection is capable of passing from one generation to another by means of the eggs.

House-flies may also be infested with mites. Various species of these mites have been reported, and one of them, *Gamasus musci* (Mégnin), is of common occurrence. It is a very small, brownish creature, with flattened body, oval in outline, and provided with eight legs. It firmly attaches itself to the under surface of the fly's abdomen in numbers ranging from one to half a dozen or more. I have found it several times on the common

house-fly, but only once on the lesser house-fly.* As mites abound in situations such as the breeding places of flies, it is probable that the attachment takes place just after the fly emerges from the puparium and before it takes to flight, or on subsequent visits for the purpose of depositing eggs. Although in this attachment there is possibly an element of parasitism, it appears to be essentially a means of transport to fresh places suitable for development. The infested fly does not appear to be seriously incommoded although the mouth parts of the mite seem to be deeply embedded in its host's integuments; nor does it appear to have any appreciable influence, in this country at least, in diminishing the number of flies (Figs. 16, 17, and 18).

Other house-frequenting flies.—It may be of interest in passing to refer to certain other flies which are often mistaken for the common house-fly. They are all normally outdoor flies, but may occur as co-inhabitants of houses or only occasional visitants. They may be readily distinguished with a little observation.

The lesser house-fly.—A frequent companion of the common house-fly is one very similar in general appearance (Figs. 19 and 20), but smaller and more slender in build, and on that account known as the lesser house-fly (*Fannia canicularis*). It is readily distinguished from *Musca domestica* by certain characteristics; the tips of the wings are closer together, the abdomen is narrower and more tapering, and the fourth longitudinal vein of the wing runs out to the margin without bending upwards at an angle. Another distinction which everyone will readily appreciate is its jerky, zig-zag, hovering flight round the chandeliers of the living rooms and close to the ceilings of bedrooms. Its occurrence in houses affords certain interesting contrasts with the common house-fly. For instance, it is more abundant in May and June, and thereafter is gradually replaced or displaced by the common fly. They tend

* A Gamasid mite very similar to *Gamasus musci* was found in two houses in the South Side of the City in September, 1904, and August, 1905, respectively, as an insect pest. In one of the houses two members of the family were severely bitten by the mites on the wrists and ankles.

to live separately in houses affording them the opportunity of doing so, the smaller fly retreating to the bedrooms and living rooms, while the kitchen, with all its dietetic opportunities, is held by the common fly. It is not so partial to articles of food, and may on that account be regarded as not so objectionable or dangerous as the common fly, but it is to be remembered against it that its outside feeding habits are very much the same, and so also are its breeding places. This fly, attracted by sweat, makes itself indoors a more pertinacious nuisance than the house-fly, and outdoors buzzes around the workman or follows the pedestrian in an aggravating swarm. Certain closely allied flies are well known as garden pests in their larval state, attacking such vegetables as cabbage, onion, and celery.

The latrine fly (Fannia scalaris) is almost identical with the lesser house-fly. It derives its name on account of its common breeding habits, and is an objectionable invader of houses where water carriage of excrement is not established.

It is worthy of note that the maggots of these two flies differ wholly in appearance from the maggot of the common house-fly. They are somewhat flattened, and are provided along the sides and ventral surface with appendages which give the body a fringed aspect. These maggots are not infrequently associated with the digestive tract of man. It is assumed that the eggs or larvæ pass into the tract with vegetable food in a raw state, and are expelled sometimes in large numbers on reaching the full stage of larval development. The condition, which is termed Myiasis, may cause considerable discomfort, but is not usually attended with danger to life.

The biting fly.—There is a popular belief that house-flies sometimes bite, especially during dull weather. This belief has naturally arisen from the fact that the real culprit is a blood-sucking fly with a very close resemblance to the common house-fly. It is known popularly as the "stable fly," and also as the "storm fly," and in entomology as *Stomoxys calcitrans* (Fig. 21), names all acquired from its associations and habits.

It favours sunny walls, on which it may be seen in large numbers, especially about the stables and cowsheds of the farm-yard, but goes indoors on the approach of rain or when the sky is dull. When closely examined it will be seen that it is slightly larger than the house-fly, and sits with wings further apart; that it is furnished with a shiny black proboscis like an awl, which projects forwards from beneath the head; and that its abdomen, broad in proportion to its length, is marked by symmetrical brown spots. It feeds chiefly on the blood of cattle, horses, dogs, and man, and may remain enjoying itself on its victim from two to twenty minutes. In captivity with others of its kind it shows cannibalistic tendencies.

This fly is of special interest to us for various reasons. In this country there is not much evidence against it as a spreader of disease, although its blood-sucking habits would readily enable it to carry anthrax from animal to animal or from animal to man. In one instance, of which I had authentic information, it caused a most intractable series of boils in the neck; and in another, where the bite was through a stocking, it caused a painful and long-continued red indurated swelling on the calf of the leg. In the last few years attention has been repeatedly called to the fact that this fly may be responsible for transmitting the infection of poliomyelitis or infantile paralysis, which, greatly to the surprise of physicians, became an epidemic disease in 1907.

The cause of the disease has not been definitely demonstrated, but it can be transmitted experimentally. It is probable that the insect only acts the part of a hypodermic syringe in the withdrawal and injection of blood, for cases of disease frequently occur in circumstances excluding the presence of stomoxys. Another reason why this fly claims our attention is because it is representative in this country of very similar biting flies which cause devastating disease to man and animal in Africa, and which are known as the tsetse-flies.

The other flies which may be found in houses are not nearly so numerous, and are more easily distinguished, but as they all frequent decaying animal and vegetable matter and excrement, some of the commoner ones call for passing mention. The blow-fly or blue-bottle (Fig. 22) is represented by two species which are only distinguishable on close examination. The chief points

of distinction are the jowls, which are reddish in the one (*Calliphora erythrocephala*) and dark grey or black in the other (*Calliphora vomitoria*). The green-bottle (*Lucilia cæsar*), smaller than the blue-bottle, is notable for its shining metallic green, or green and blue, colour (Fig. 23). The cluster fly (*Pollenia rudis*), sluggish in its movements and reddish-grey in colour, will be familiar to many from its habit of clustering in corners or crevices or behind blinds in closed rooms or rooms seldom occupied (Fig. 24). The yellow dung fly (*Scatophaga stercoraria*), although not attracted by food, is often seen in country houses and gardens.

We pass now to the second mode by which insect-borne infection is transmitted, and take for illustration the biting tsetse-flies, the carriers of the germs of sleeping sickness in man and of allied diseases in the lower animals.

TSETSE-FLIES AND SLEEPING SICKNESS.

Sleeping sickness came into prominence through its epidemic prevalence in Uganda in 1901, but it was no new disease. According to Hindle,* Surgeon John Atkins described cases on the Guinea Coast in 1734. He called it the "sleeping distemper," and found it common among the negro slaves, at that time exchanged for the tempting commodities of Europe. His language in speaking of the causation of the disease is very characteristic of his time, and reflects the speculations of the period as to the origin of disease. He writes—"The immediate cause of this deadly sleepiness in the Slaves is evidently a superabundance of phlegm or serum extravasated in the brain, which obstructs the irradiation of the nerves; but what the Procatartick Causes are that exert in this production, eclipsing the Light of the Senses, is not so easily assigned."

In recent years the disease appears to have spread extensively in Central Africa, as a result of the opening up of the continent, and is now found throughout a broad equatorial band closely associated with the distribution of certain tsetse-flies.

* E. Hindle, *Flies and Disease—Blood-sucking Flies*, Cambridge Public Health Series, 1914.

Sleeping sickness a trypanosome infection.—The story of the discovery of the actual cause of sleeping sickness, and how man receives the infection, is one of the most interesting chapters in the history of modern medicine. About seventy years ago a very peculiar minute animal parasite was discovered in the blood of fish and frogs, and some thirty years later in the blood of the common rat. For a long time these parasites were only of interest to zoologists, and appeared to have no relation to the causation of disease; but as time passed many other species were found and recognised as disease-producing organisms, one of the most notable proving to be the cause of sleeping sickness. These blood parasites, which have been called by various names, are now known as trypanosomes, and are characterised by an elongated spindle-shaped body encased in a fine sheath, and provided with a delicate whip-like lash or flagellum. The flagellum takes origin near what authorities have agreed to call the posterior end of the parasite, and, passing forwards within the border of the sheath, emerges from the anterior end (Fig. 25). In its course it raises the sheath into a fin-like undulating membrane. By means of the flagellum and the undulating membrane the trypanosome shows very active lashing movements amongst the blood corpuscles.

Strangely enough, the trypanosome of sleeping sickness, a disease of tropical Africa, was first seen in the blood of an Englishman. In 1901 Dr. Forde, colonial medical officer in charge of the hospital at Bathurst, West Africa, saw actively moving bodies in the blood of one of his patients, a fellow-countryman, suffering from a peculiar type of fever, and referred the matter to Dr. Dutton, who recognised that the actively moving bodies were trypanosomes. Shortly afterwards Dr. Dutton found the same organism in the blood of a Gambia native also suffering from fever, and, considering that it was probably a new parasite, gave it the name of *Trypanosoma gambiense*. Continued investigations created the impression that this trypanosome fever, or trypanosomiasis, was a mild disease in the natives, for in many of them the presence of the parasite in the blood did not appear to affect their health. Then it was that the Uganda epidemic gave opportunity for systematic investigation of sleeping sickness, and a Commission

was sent out by the Royal Society to determine, if possible, the cause of the malady. The symptoms naturally directed special attention to the examination of the brain and spinal cord of the victims, with the result that in 1903 Dr. Castellani noted the presence of trypanosomes in the fluid of the brain and spinal cord. The other members of the Commission, Drs. Christy and Low, proved that the area of infection was confined to a narrow strip of country surrounding the lake shores and on the islands of Lake Victoria. At this juncture Bruce arrived on the scene, and recognised the possibility that the trypanosomes might be the cause of the disease, and that the transmitting agent might be a tsetse-fly. These possibilities presented themselves to Bruce's mind, because he had already investigated in Zululand a trypanosomic disease in cattle called nagana, and had proved its spread to be due to the tsetse-fly. The surmise was correct; tsetse-flies were found in every locality where sleeping sickness prevailed, while trypanosomes were revealed by the microscope in the cerebro-spinal fluid of every case. It thus became evident that the natives showing the trypanosomes in the blood, either with fever or without any serious loss of health, really represented the initial stages of the infection, and that the condition of lethargy passing to stuporous sleep, which had earned the name of sleeping sickness, was only the later stage of the disease brought about by the parasites having passed from the blood to the cerebro-spinal fluid.

Tsetse-flies the carriers of the infection.—When Sir David Bruce arrived in Zululand in 1894 there was only one species of tsetse-fly recognised—*Glossina morsitans*. Up to the present time he states* that some fourteen or more different species of these flies have been named, and that nine different disease-producing trypanosomes have been discovered in Central Africa. It has further been shown that different species of trypanosomes are carried by different species of tsetse-flies.

The tsetse-flies chiefly responsible for sleeping sickness belong

* The Croonian Lectures on "Trypanosomes causing Disease in Man and Domestic Animals in Central Africa," *British Medical Journal*, June-July, 1915.

to two species, *Glossina palpalis* and *Glossina morsitans*. Recent investigations, moreover, have associated them respectively with two types of the malady distinguished as Congo sleeping sickness and Nyasaland sleeping sickness. The distribution of *Glossina palpalis* is mainly limited to the basins of the great rivers Senegal, Niger, and Congo, but also extends eastwards to include the first part of the Nile valley and the shores of Lakes Victoria Nyanza and Tanganyika and their affluents. It is the chief disseminator of Congo sleeping sickness by acting as the intermediate host or carrier of the infection—the *Trypanosoma gambiense*. The area occupied by *Glossina morsitans* has a still wider range; it extends across the African continent from Senegambia to Abyssinia and southwards to Zululand. It is, in fact, the most widely distributed of all the tsetse-flies, and is the one to which the name "Tsetse" was originally applied and with which the so-called tsetse-fly disease—a destructive trypanosomiasis of domestic stock—has long been associated. It now comes into still greater prominence by the discovery that it acts also as the carrier of the trypanosome of that type of sleeping sickness met with in Nyasaland and Rhodesia. (This trypanosome was first described by Stephens and Fantham* in 1910 under the name of *Trypanosoma rhodesiense*.) The two flies bear close resemblance to one another in form and structure, and only differ notably in their colour markings. The wings are long and characteristically closed over one another like a pair of scissors (Fig. 26). The proboscis is very similar in appearance to that of the biting fly of this country. To the naked eye it appears as a simple black trunk, but in reality it is a sheath (formed by the pair of processes known as palpi) holding and protecting the delicate biting mouth parts when they are not in use. When the fly is feeding this sheath is maintained in the horizontal position, and the mouth parts, just visible to the unaided eye in the form of a very fine sting-like process with a bulbous base, are lowered into the vertical line of the head (Fig. 27). Under the microscope it is seen that the palpi are clothed externally with short hairs and bristles, and held in close apposition to form a perfect sheath; and that the mouth

* *Proceedings of the Royal Society*, B 561.

parts appear as three well-defined structures representing the upper lip (labrum), the lower lip (labium), and the terminal duct of the salivary glands (hypopharynx) occupying a middle position. The labrum and the labium interlock to form a conduit through which the blood is drawn when the fly is in the act of imbibing, while the hypopharynx takes the form of a delicate, transparent tube, and extends along the floor of the conduit within a deep groove in the labium to open near the tip of the proboscis. By dissection those three structures may be made to stand out separately from one another in side view (Figs. 28 and 29). The food of these flies is blood,

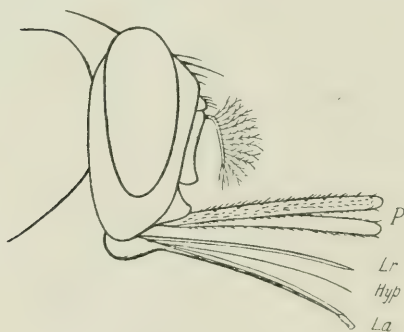


FIG. 28.

Semi-diagrammatic profile view of a tsetse-fly's head showing palpi and mouth parts (separated). *P.*, Palpi; *Lr.*, Labrum; *Hyp.*, Hypopharynx; *La.*, Labium. $\times 12$.



FIG. 29.

Transverse section (diagrammatic) of a tsetse-fly's proboscis near the bulb showing the interlocking of the labrum and labium to form the conduit for the intake of blood. *Lr.*, Labrum; *La.*, Labium; *Hyp.*, Hypopharynx. $\times 500$.

with which they may fully distend themselves in a half to two minutes, and increase their weight one and a half to two and a half times. But although in all these respects very similar, their habitat is very different. *Glossina palpalis* frequents, and is confined to, the shores of lakes and rivers, where there is plenty of shade, "trusting to man for a food supply, or, in his absence, living on the large reptiles, birds, and antelope which frequent these places" (Bruce). *Glossina morsitans*, on the other hand, lives in wild, unpopulated districts, and may even be found at elevations ranging to 5,000 feet. It frequents dry, thorny scrub supplying requisite

shade, and depends on the wild game for a food supply. Both flies are confined in a seemingly arbitrary manner to narrow strips of country or fly belts in localities which they frequent. They do not lay eggs, but give birth to a fully-grown larva which bores its way into the loose surface soil and passes at once into the pupa stage. As the long wings presage, their flight is quick and darting, and is accompanied by a buzzing sound that probably accounts for their peculiar name. They feed in the morning and afternoon, retiring to the shade in the hottest part of the day, and are specially attracted by moving bodies. In their attacks upon man the preference for the native rather than the European is ascribed to an inherent predilection for black surfaces. All these facts have an essential relation to the spread of disease and to its topical restriction.

Transmission of trypanosomes from fly to man.—When the tsetse-fly imbibes blood containing the trypanosome responsible for sleeping sickness, the parasite does not remain passive in the alimentary canal of the insect, but enters upon and completes a definite stage in its life-cycle. During this stage the fly is harmless should it bite a healthy person. In the course of ten to fifteen days the trypanosomes undergo development and reproduction in the intestine of the fly, and then migrate forward in large numbers into the proventriculus. From there they pass to the hypopharynx, and then along the salivary ducts to invade the salivary glands about the twentieth day. These glands, long and tortuous, extend the whole length of the body, as in the house-fly. Here they take up their abode, and the fly now becomes infective, and may remain so for a long period. When the fly in this condition bites, the young trypanosomes in the salivary glands are passed down the salivary ducts through the delicate hypopharynx, together with the salivary secretion, and injected into the wound made by the tube-like proboscis. According to Sir David Bruce, it would appear almost impossible for an infective fly to pierce even momentarily the skin of a healthy, susceptible animal without causing infection.

It will be seen that this mode of transmitting infection differs radically from that pertaining to the house-fly. The

tsetse-fly acts, not as a mechanical transmitter, but as a necessary host harbouring the infective agent during a stage of development requiring a period of nearly three weeks.

Those characteristics of structure, habitat, and feeding enable us to understand the peculiar potency of tsetse-flies in the inoculation of trypanosomes; but the question remains as to where they acquire them. There are two sources. In the first place, there is the native with trypanosomes in his blood in the febrile stage prior to the onset of the symptoms of sleeping sickness. In the second place, it has been found that wild game in the tsetse country are heavily infected, and the belief is prevalent that they form the chief reservoir and source of the infection. The remedies proposed, and to some extent already justified, are the removal of the natives from the fly area, clearing and cultivation, and the expulsion of the wild game from the fly country.

I have shown only two types of insect from the many which have been proved to spread disease, with the object of illustrating some of the facts, possibilities, and problems of insect-borne infection, believing the presentation of a small part of the subject in this way to be of more interest and value than a multitudinous array of the insects that disturb the well-being of man and animal alike. I trust that I have also been able to show that an intimate and complete knowledge of the life-history of pestiferous insects is essential if we would be intelligently equipped to control their number and to prevent them spreading disease.

ILLUSTRATIONS.

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PLATE I.—THE HOUSE-FLY AND ITS DEVELOPMENT.

- FIG. 1.—The house-fly (*Musca domestica*). Magnified 1·6 diameters. (The wings are not so much spread in the position of rest.)
- „ 2.—Eggs deposited in masses in stable manure. $\times 1\cdot6$.
- „ 3.—Larvæ just emerged from the egg. $\times 1\cdot6$.
- „ 4.—Mature larvæ; one has just entered the stage of pupation. $\times 1\cdot6$.
- „ 5.—Pupæ from stable manure. $\times 1\cdot6$.
- „ 6.—The fly just emerged from the puparium, showing the ptilinum inflated and the wings not yet expanded. $\times 1\cdot6$.

PLATE II.—THE CARRIAGE OF INFECTION.

- FIG. 7.—Leg of house-fly. *A*, The femur, tibia, and tarsus. $\times 10$. *B*, The tarsus or “foot” (under surface) showing its five segments, terminal claws and flaps (pulvilli). $\times 16$. *C*, Three segments of the foot showing the armature of bristles and spines, the movable claws, and the membranous pulvilli (in outline). $\times 70$. (The mat of fine short hairs is not seen in the figure.)
- „ 9.—Fly spots. A fly confined in a test-tube regurgitated and deposited several drops which dried into the characteristic white spots. In depositing the last drop the proboscis has become glued to the glass with the drying of the viscid fluid. $\times 1\cdot6$. (The fly is viewed from below.)
- „ 10.—The bacillus of anthrax. A microscopical preparation from the kidney of an ox dead of the disease. Only two chains of bacilli are seen beside two nuclei of kidney cells. $\times 1,000$.
- „ 11.—Profuse growth (24 hours) of colonies of bacillus anthracis on culture medium inoculated by the feet of a house-fly. The fly had previously walked over the carcase of an animal dead of anthrax. One half natural size.

PLATE III.—NATURAL ENEMIES OF THE HOUSE-FLY.

- FIG. 12.—Fly dead of *Empusa musca* and attached to paper curtain in life-like attitude. $\times 1\cdot6$.
- „ 13.—Fly recently dead of *Empusa musca*, showing abdomen distended and ringed from the growth of the white fungus outwards between the black segmental plates. $\times 1\cdot6$.
- „ 14.—*Empusa musca* growing through the soft membrane stretched between two widely separated segmental plates and bearing terminal spores. $\times 60$.

- FIG. 15.—Wing of fly bespattered with the spores of *Empusa musca*. $\times 45$.
 „ 16.—Mites attached to the under surface of the abdomen, and to one of the legs of a house-fly. $\times 1\cdot6$.
 „ 17.—Mite on a house-fly showing parasitic mode of attachment. $\times 6$.
 „ 18.—Mite from house-fly. $\times 6$.

PLATE IV.—OTHER HOUSE-FREQUENTING FLIES.

- FIG. 19.—The lesser house-fly (*Fannia canicularis*). Male. $\times 1\cdot6$.
 „ 20.—The lesser house-fly (*Fannia canicularis*). Female. $\times 1\cdot6$.
 „ 21.—The biting fly (*Stomoxys calcitrans*). $\times 1\cdot6$.
 „ 22.—The blow-fly or blue-bottle (*Calliphora erythrocephala*). $\times 1\cdot6$.
 „ 23.—The green-bottle (*Lucilia cæsar*). $\times 1\cdot6$.
 „ 24.—The cluster fly (*Pollenia rudis*). $\times 1\cdot6$.

PLATE V.—SLEEPING SICKNESS.

- FIG. 25.—Trypanosomes (*T. evansi*) in blood of mouse. $\times 1,000$.
 „ 26.—Tsetse-fly (*Glossina palpalis*). Shows the fly in a position of rest. $\times 3\cdot3$. (After Graham, from the Sleeping Sickness Bulletin, by kind permission of the Director of the Tropical Diseases Bureau.)
 „ 27.—Head of tsetse-fly (*Glossina palpalis*) showing the mouth parts in the biting position (approximately). $\times 6$. (Photograph of specimen kindly presented by Professor J. Graham-Kerr.)

FIGURES IN TEXT.

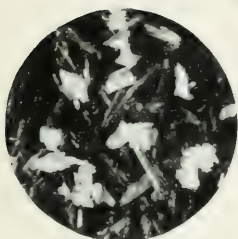
- FIG. 8.—Diagram of proboscis, alimentary canal, and salivary gland of the house-fly. (Partly constructed from drawings of Howard, Newstead, and Graham-Smith.)
 „ 28.—Semi-diagrammatic profile view of the head of a tsetse-fly showing palpi and mouth parts (separated). $\times 12$. (Drawn from the fly and from illustration by Stephens and Newstead in Memoir XVIII of the Liverpool School of Tropical Medicine.)
 „ 29.—Transverse section (diagrammatic) of a tsetse-fly's proboscis near the bulb showing the interlocking of the labrum and labium to form the conduit for the intake of blood. $\times 500$. (Modified from Stephens and Newstead.)

Figures 7, 11, 12, 13, and 22 photographed by Wm. R. Ogilvie.

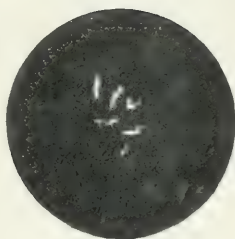
Figures 8, 28, and 29 drawn by John Burnside.



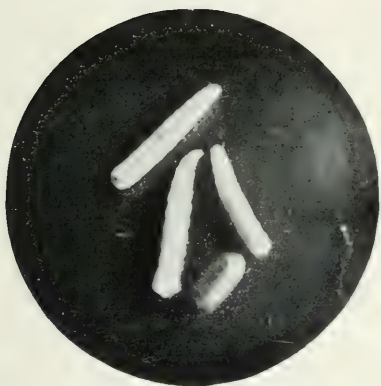
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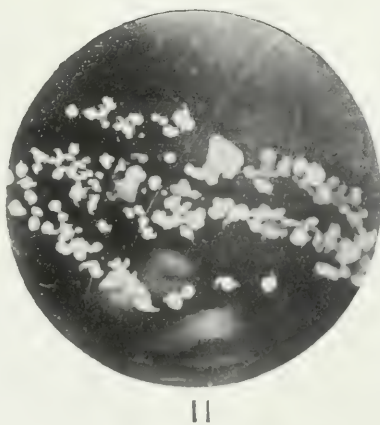
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THE HOUSE-FLY AND ITS DEVELOPMENT.

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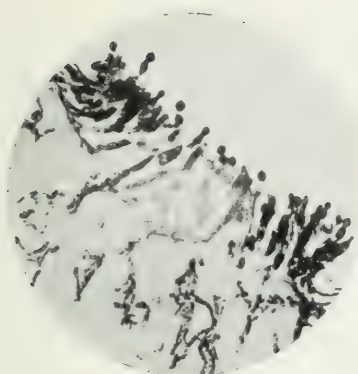
THE CARRIAGE OF INFECTION.



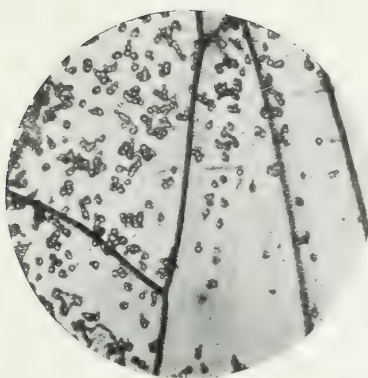
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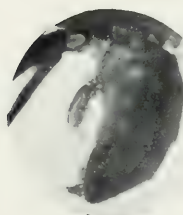
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NATURAL ENEMIES OF THE HOUSE-FLY.



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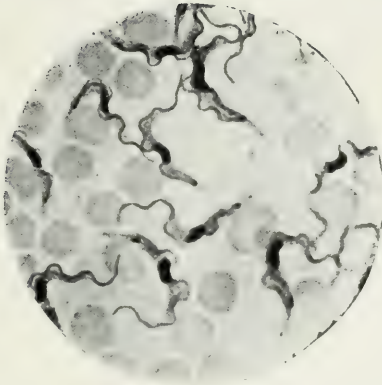
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SLEEPING SICKNESS.

HYSTERICAL STOMACHS.

By A. ERNEST MAYLARD, M.B., B.S., F.R.F.P.S.G.,
Surgeon to the Victoria Infirmary, Glasgow.

THERE have been recently admitted into my wards two cases presenting more or less vague gastric symptoms. They are types of a class of cases that have, from time to time, found their way—strange as it may at first sight appear—into a surgical ward; for, as the sequel will show, in no instance has there existed any grave organic lesion for which operation could be claimed as requisite treatment. But let me briefly describe these two cases before making any further remarks.

CASE I.—This was the case of a man, aged 43 years, whose general physical condition was excellent. He had a good complexion, was well nourished, and possessed a well-developed musculature. He was regular in his habits, and, as may be concluded from his vocation, which was that of a police sergeant, he was abstemious in the matter of alcohol and food. Except that he was somewhat of a retiring disposition, it cannot be said that there was anything of the nature of neurosis about him. A physical examination of his abdomen was negative. He told us that up to eighteen months ago he had enjoyed good health, and then from some unknown cause he began to have pain in his stomach and left side. This increased in severity and frequency until five weeks before his admission to the Infirmary, when he was compelled to give up his work. The pain he described as of a burning character, more or less constantly present, but aggravated by the taking of food, and disappearing in the course of a couple of hours. All kinds of food seemed to have the same effect, although a purely milk diet, as ordered by his doctor, was followed by the least discomfort. While he had never vomited, he had suffered much from flatulence and occasional sour eructations. His bowels had been constipated,

for which condition he had been in the habit of taking cascara. A gastric lavage gave no evidences of organic or functional derangements. His opinion was, as he expressed it, that if only his stomach could be put right he would be all right. While, therefore, his symptoms gave no distinct evidence of any particular gastric trouble, their chronicity and unamenability to any medicinal or dietetic treatment seemed to warrant and justify an exploratory abdominal operation. This was accordingly done, and with an absolutely negative result so far as a pretty complete intra-abdominal inspection allowed. He made an uninterrupted recovery, with a complete disappearance of his old gastric symptoms, so that when he left the Infirmary about a month after his operation he considered himself cured.

CASE II.—The other case was that of a woman, aged 41 years, who was similarly admitted to the Infirmary suffering from chronic gastric symptoms of a somewhat vague and indistinctive type. She, too, was in an excellent physical condition, well nourished, fresh complexion, and a healthy skin. Mentally, however, she differed from the male case in being of a bright and cheerful disposition. Her history was that for many years she had suffered from gastric disturbance, but her symptoms had become more and more marked during the last five years; and, indeed, it was owing to a special request from her doctor for her immediate admission "owing to her severe and continued suffering" that she was one day taken in as an urgent case. The pain she complained of was situated in the mid-epigastric region; it was of a dull, burning character, coming on about half an hour after food, and gradually disappearing about two hours later. Fluid diet caused her the least discomfort. She had never vomited, but had suffered from flatulence and sour eructations. The bowels were slightly constipated. The only feature noted on physical examination of the abdomen was a marked muscular hyperæsthesia, evidenced when pressure was made by the tips of the fingers over any part of the abdominal parietes. She was kept under careful observation for about nine days; and, as nothing further could be elicited to explain the symptoms, and a

prolonged period of medicinal treatment had failed to produce any permanent improvement, an exploratory abdominal operation appeared justifiable. This was accordingly carried out. As in the case of the man, a thorough search was made for any possible cause of the symptoms—a search, it may be indicated, which embraced the regions of the gall-bladder, the duodenum, the duodeno-jejunal bend, the colon, the cæcum and appendix, and the right kidney. It was only with the last-named viscus that any abnormality existed: it was somewhat prolapsed, but the mobility did not appear sufficient to necessitate fixation. The patient, like the preceding one, made an uninterrupted recovery, and was entirely relieved of her symptoms from the time of the operation up to the date of her dismissal about a month later.

These two cases are of too recent occurrence to warrant any other deduction regarding them than that up to the short period of a month from the date of the operation they were relieved of all their gastric symptoms. But I am able to refer to cases where several years have elapsed and the patients have remained perfectly well; in other words, that the operation, which in every respect was negative in its findings, had effected a complete and permanent cure.

In order not to add to the length of this intended short article, I may perhaps be allowed to refer the reader to the chapter on "Gastric Neuroses" in my book on *Practice and Problem in Abdominal Surgery*, p. 185, where I have fully described other cases of a like nature to the two above narrated. As bearing upon the possible psychical origin of these cases, concerning which theory I shall have more to say presently, it may be indicated that the fact that the operation has found no cause to explain the symptoms is never allowed to come to the knowledge of the patient. On the other hand, assurance is given by all in attendance on the case, whether doctors or nurses, that the operation has been most successful, and that a perfect cure will result. The patient invariably is perfectly satisfied, and rarely raises any question of enquiry regarding what the operation revealed. This fact in itself is rather a striking feature, and more or less out of keeping with what

usually happens with patients who are the sufferers from some definite organic lesion.

If one, first of all, looks at these cases from a diagnostic point of view, the most striking feature is probably the want of evidence of symptoms suggestive of some distinct lesion, either of the stomach itself or of some other organ or tissue which could reflexly or indirectly affect the viscus. There is a want of continuity and connectedness both as regards times of appearance of the symptoms and degrees of severity. One is, more frequently than not, puzzled by the patient's complaints rather than enlightened by the history given of them. Another feature, well exemplified in the two cases narrated, is the want of any marked physical or mental debility. Some degree of neurosis is occasionally present, but practically none was observable in the two cases quoted above. The absence of these constitutional conditions adds considerably to the difficulty of explaining the cause of the gastric symptoms; and yet, at the same time, serves to suggest the probable psychical origin of them. Again, the usual story given is that neither medicine nor diet ever does any good. As a rule, when we are dealing with any recognised organic or functional derangement of the stomach, we are able to exercise some alleviative influence by means of medical measures; but these cases seem quite unamenable to treatment, and the number of drugs employed often exhausts the apothecary's stock of gastric remedies.

Yet another feature of no little importance in our efforts to arrive at some sort of diagnosis is our failure to detect any lesion elsewhere which could in some way more or less indirectly act upon and derange the gastric functions. Thus, we may direct our attention to such external influences as might be exercised through affections of the spinal nerve system, the circulation, the hepatic and renal viscera, the intestinal canal, including the appendix, the reproductive organs of the female; indeed, through any of the intra-abdominal organs and tissues. It is not, however, always easy totally to exclude one or other of these possible agents; and it is largely for this reason, if not alone for the supposed possible existence of some trouble connected with the viscus itself, that an exploratory abdominal operation is undertaken.

To what, then, are we to attribute the symptoms of these mysterious cases? If, as it seems possible, we are able to exclude almost every organ and tissue of the body, except the brain, from participating in any causative influence, we are left with this one exception to account for the mystery. And, after all, is there any very great difficulty in accepting such a theory as the probably true explanation? My colleague, Dr. Ivy Mackenzie, at the Infirmary, with whom at times I have discussed some of these cases, has told me of many interesting and striking physical disorders which have manifested themselves in different parts of the body, and which, being largely of a functional character, may reasonably be ascribed to aberrant psychical influences. What more likely, then, than that an exceptionally sensitive organ such as the stomach should under similar inexplicable psychical stimuli excite functional disturbances just as mysterious as may be met with in a limb, an eye, a portion of the skin, &c.?

These various manifestations, when rendered visible on external parts of the body, are frequently attributed to hysteria. May we not apply the same term when the manifestations are perchance limited to the stomach? And if we accept the existence of hysterical stomachs, may we not have hysterical bowels, kidneys, livers—indeed, similar functional disturbances of every tissue and organ of the body? It is by no means, as it might at first sight appear, a silly and senseless conception. Reason rather would have it that if the brain can be held responsible for deranging one particular part of the body, it can with equal certainty be capable of upsetting the economy of any other. “The influence of the mind upon the body” is such a trite and well-known old saying that one has become too apt to disregard its cogency, and adopt, sometimes, measures out of all proportion to the actual and necessary requirements. It certainly seems rather a severe means to adopt to open and rummage in a patient’s belly in order to awaken cerebral processes needed for purposes of repair! If it were not that we so frequently make our exploratory operation with a view to deal with something which we think may possibly exist as a cause of the symptoms, it could hardly be considered justifiable, and quite probably unnecessary, to open and explore the

abdominal cavity. Assuming that a surgical operation is considered necessary solely on the grounds of producing a sufficiently powerful mental impression, an impression which would re-establish the normal train of influences between mind and body that, for some unaccountable reason, had got deranged, something of a much less severe character might be attempted than that embraced in an inspection and palpatory examination of the contents of the abdomen. It is almost certain that the much simpler and less dangerous triple procedure of (1) the administration of an anæsthetic, (2) a skin incision with suture in the epigastric region, and (3) the after-assurance of a complete cure, would accomplish all that is required. Until, however, it is possible differentially to diagnose these cases, to distinguish them from those whose symptoms are really attributable to a local condition of the stomach itself, or to disease of some other intra-abdominal organ directly or indirectly acting upon the stomach, it is to be feared that severe measures must continue to be carried out. But so long as the operation itself is executed, as it may be, without any untoward result, immediate or remote, the end may reasonably be considered to justify the means.

URINE-TESTING WITH ESBACH'S ALBUMINOMETER :
SOURCE OF ERROR DISCUSSED.BY H. E. JONES, M.B., C.M. GLASC.,
Lieutenant, Royal Army Medical Corps.

SOME months ago I was consulted by a young man of about 25 years of age, who suffered with kidney disease of two years' standing. His illness began by frequency of micturition; later on, his body began to swell and the urine became scanty. Under treatment in hospital he showed signs of improvement, but ere long his symptoms were as bad as ever. When he first consulted me his face, body, and limbs were very much swollen; and shortness of breath was complained of. He had no appetite for solid food, but partook of liquids. He did not suffer much from sickness, although he sometimes had attacks of vomiting. He did not complain of headaches or of dizziness; his bowels were in good order; his liver was not enlarged; his lungs were healthy. His heart sounds were accentuated, but no murmur was heard; blood-pressure was 150. His eyes were normal. His urine had specific gravity of 1024, was acid, contained much albumen, tube-casts, and epithelial cells: there was neither blood nor sugar present. Tested in Esbach's albuminometer with picric acid and citric acid, the amount of albumen precipitated, after twenty-four hours' standing, filled the graduated tube up to the letter "U." The patient was then put upon benzoate of soda, 10 grs. in a tumblerful of water, thrice daily. He was asked to measure the quantities of urine passed daily, and to send samples periodically for examination.

For several days after treatment was begun, the quantities of urine fell gradually from 39 to 36 oz. daily. The specific gravity ran up; a V.S. murmur was discovered at the apex: the blood-pressure fell from 150 to 145, due, no doubt, to valvular incompetency; and the quantity of albumen, as measured by the albuminometer, stood at the letter "U" in

the graduated tube. The following week the quantity of urine varied from 40 to 55 oz., and for several weeks afterwards maintained an average of about 50 oz. per day. In one sample of this urine the quantity of albumen registered 12 in the albuminometer, and the blood-pressure ran up to 155. At first the samples of urine were all acid, and the quantities of albumen very abundant, seldom below the letter "U."

In two weeks after treatment by benzoate of soda the urine was alkaline, with a specific gravity of 1017; and the amount of albumen was still very great. As the dropsy was not decreasing, the skin and cellular tissue of the lower limbs were punctured. In addition to the benzoate of soda, 1 gr. of calomel was given every night, and $\frac{1}{2}$ drachm of mag. sulph. every morning. For some days after the limbs had been punctured the quantity of urine passed daily fell considerably; but in the course of a week or so there was a decided increase in the amount.

Although this was maintained for some weeks the patient did not improve to any great extent; as a consequence the benzoate of soda was stopped, and half an ounce of the fresh infusion of digitalis was given thrice daily, in addition to the calomel and mag. sulph. As a result of this treatment the amount of urine increased very considerably, having an average of about 80 oz. per day, while on one occasion he passed as much as 120 oz. in twenty-four hours. The specific gravity ranged from 1010 to 1012; the amount of albumen per sample became less; the dropsy decreased, and, later on, almost entirely disappeared; and the blood-pressure ran up to 175 instead of 150, as it was when first taken. This last circumstance may have been due to the fact that under the influence of digitalis his heart had become stronger, and that there was now no regurgitation, as evidenced by the fact that no murmur could now be detected. Of this urine several samples were examined. They were all *alkaline*; the specific gravity was at or about 1012; and the amount of albumen, as measured by Esbach's method with the same reagent as had been used from the first, was *nil*.

As the examination of several samples on different occasions gave precisely the same finding, the result was considered

highly satisfactory. Unfortunately there was a fallacy, which, when discovered, revealed the fact that the result was far from encouraging. As this fallacy is by no means common, having now for the first time in twenty years come under my notice, I make this my apology for publishing the case.

In testing my samples at first, I invariably followed the orthodox method of using nitric acid, heat, &c., before ascertaining the quantity of albumen. Later on, in order to economise time, I merely wished to ascertain the quantity of albumen in each sample, and, without going through the routine method of testing, simply placed the measured quantity of urine in the albuminometer, and then poured in the recognised reagent (picric acid and citric acid). At first an inconsiderable precipitate appeared, which almost immediately disappeared, leaving the fluid slightly turbid. On being set aside and examined at the end of twenty-four hours, this was found to be much the same, without any precipitate. The result, as I have just mentioned, was very encouraging.

Subsequently, having tested another sample with nitric acid, I was much disconcerted to find a solid precipitate of albumen. In order to ascertain the quantity, I placed some of this urine in the albuminometer and applied Esbach's reagent, with the result that there was *no* precipitate. Having noticed this, I then tested several samples from the same patient with other reagents, and found that these invariably gave copious precipitates, while Esbach's reagent gave a negative result. As the reagent used was part of what had been used when at first the quantity of albumen almost filled the albuminometer, it could scarcely be wrong. In order to verify this, other samples of albuminous urine were treated with the same reagent and gave copious precipitates. The reagent was apparently all right, and was distinctly acid. The irregularity must therefore be in the urine. In order to ascertain this, I made very careful examinations. The urine was strongly alkaline: but, as the picric acid solution was highly acid, it did not seem possible that any error could arise from that point. To decide this, the mixed solution of urine and Esbach's reagent in the albuminometer were tested, and gave an acid reaction.

The urine had a specific gravity of 1210.

Boiling, with the addition of acetic acid, gave a thick curd.

The nitric acid test gave a thick deposit, almost solidifying; it became yellow on boiling.

Magnesium sulphate gave a precipitate.

Ammonium sulphate gave a very decided precipitate.

Spt. vini. methyl. gave a very milky precipitate.

Fehling's solution (boiled) gave no reaction. Fehling's solution (cold) gave a rose ring—showing peptone.

Alcoholic solution of zinc chloride gave no fluorescence.

Tr. guaiaci and ozonic ether gave no blood reaction.

Ammonia gave a slight haze.

Nitrate of silver gave a heavy deposit.

Urea, 0.008 grammes.

Microscopic.—No blood cells; no pus; no tube-casts; some epithelial cells.

Picric acid and citric acid, added separately, gave a heavy deposit.

Boiled, acidulated, filtered, and treated with picric acid gave a slight precipitate, which disappeared on heating—showing peptones.

Esbach's reagent and urine, mixed in equal proportions, gave a cloudy precipitate, which disappeared on being shaken, probably due to peptones. Esbach's reagent added in excess gave a precipitate which did not disappear on being shaken.

After treating a portion of the urine with an equal quantity of Esbach's reagent in the albuminometer for twenty-four hours with negative result, the mixture (in the albuminometer), which was already acid, was still more highly acidulated by the addition of more citric acid. The result of this was a copious deposit of albumen, which, on standing for other twenty-four hours, registered "8" on the measured glass.

The explanation of this peculiar case appears to rest upon the fact that the urine was highly alkaline, and that the amount of citric acid in Esbach's reagent was not enough to acidulate an equal quantity of urine to the extent required, such that the picric acid contained could precipitate the albumen present.

This case demonstrates the importance in testing of being

careful as to the reaction of urine, and of not trusting to a reagent such as Esbach's as being sufficient, at least in small quantity, to precipitate albumen in alkaline urine.

Another point of interest is the fact that his condition varied according to the state of his heart. When first seen by me no murmur was heard, the patient had a blood-pressure of 150, and was passing less than 40 oz. of urine per day. Later on, a V.S. murmur was heard, the blood-pressure fell to 145, the quantity of urine voided became less, the specific gravity increased, the amount of albumen was registered at "U," and the dropsy was excessive.

At the time of writing no murmur can be heard, the blood-pressure registers 175, the quantity of urine passed is between 80 and 90 oz. daily, the amount of albumen stands at "8" in the albuminometer, and the swelling is almost gone.

Although the patient is to all appearance very much better, and is passing double the quantity of urine that he did three months ago, the amount of albumen—although apparently less, as measured by the albuminometer—is, per day, almost equal to what it was when I first saw him. His improved condition seems to rest upon his increased blood-pressure, and this upon the improved condition of his heart, following the puncturing of his limbs and the administration of digitalis.

In consequence of the increased blood-pressure, the use of digitalis, in many cases, is not to be lightly considered.

Obituary.

JOHN DALGLEISH PATERSON, L.R.C.P. & S.Ed.,
GIRVAN.

WE regret to announce the death of Mr. J. D. Paterson, which occurred at his house in Girvan on 24th November, after a short illness. Mr. Paterson, who was a son of the late Dr. William Paterson, founder of the Glenburn Hydropathic at Rothesay, studied in Edinburgh, where he took his qualifications in 1870. Thereafter for many years he assisted his father in the treatment of patients in the Hydropathic, of which he ultimately became superintendent and consulting physician. On his retirement from that position he went to Girvan several years ago.

ROBERT THOMSON, M.B. ABERD.,
UDDINGSTON.

WE regret to announce the death of Mr. Robert Thomson, which took place in Uddingston on 28th November. The only son of the late Mr. Robert Thomson of Ardelach, Nairnshire, he was born at Cawdor in 1865, and studied medicine at Aberdeen and Edinburgh Universities, taking the degrees of M.B., C.M. at Aberdeen in 1889. In the following year he came to Uddingston as assistant to the late Dr. M'Gown, and three years later he began practice on his own account. Mr. Thomson speedily attained a prominent position in the medical and educational circles of the town. He was medical officer for the Uddingston district of Bothwell parish, and before the passing of the Insurance Act he was also medical officer to many of the friendly societies in the district. When the Act came into force he was appointed temporary secretary to the provisional

committee of the Glasgow and district panel, and he was a member of the Panel Committee. At one time he was president of the Glasgow and West of Scotland Medical Society. His interest in educational affairs led to his election as a member of Bothwell School Board; and he was one of the Justices of the Peace for the county of Lanark. He is survived by a widow and three children.

EDWARD BOYLE TANT, M.B. GLASG.,
EAST KILBRIDE.

WE regret to announce the death of Mr. E. B. Tant, which took place at East Kilbride on 29th November. Mr. Tant, who was born in Jura, entered the medical profession at a somewhat later age than most students, having followed a commercial career for some seven years before taking up the study of medicine in Glasgow University, where he took the degrees of M.B., C.M. in 1887. After graduation he acted as ship's surgeon for several voyages, and afterwards became assistant to his brother, the late Dr. Tant, of Uddingston. He settled in East Kilbride twenty-two years ago, and gave much time to local affairs as well as to his professional duties, becoming a member of the local School Board. Never very robust, his health during the last ten years had given cause for anxiety; but, in spite of the difficulties thus thrown in his way, he continued to devote himself to the interests of his patients until two days before his sudden death.

JOHN ALLAN, M.D. GLASG.,
ARDROSSAN.

WE regret to announce the death of Dr. John Allan, which took place at Ardrossan on 4th December. Dr. Allan, who was in his fifty-seventh year, was a native of Glasgow, and was one of a family of six brothers, all doctors. He studied medicine at the

University of Glasgow, where he took the degrees of M.B., C.M. in 1885, and that of M.D. in 1891. After graduation he spent a good many years in South Africa, and during the Boer War he held a commission as major in a battalion raised by the mine-owners for the protection of the mines in the Johannesburg district. On his return home he settled in Ardrossan, entering into partnership with his elder brother, Dr. Robert Allan, also a graduate of Glasgow University. To him was due the organisation of the Ardrossan Red Cross Hospital at the outbreak of the present war, and until his death he was its honorary commandant. Dr. Allan is survived by a widow and a family of three, of whom the elder son is now in France with the Commercial Battalion, Highland Light Infantry.

GEORGE ALLAN HERON, M.D. GLASG., F.R.C.P.,
LONDON.

WE regret to announce the death of Dr. G. A. Heron, which took place in London on 13th December, in his seventy-first year. Of Canadian parentage, he received his early education in Ottawa, and subsequently coming to Glasgow the remainder of his school life was spent in Glasgow Academy. He proceeded to the University for the study of medicine, taking the degrees of M.B., C.M. in 1867, and that of M.D. in 1869. After graduation he acted as house-physician and house-surgeon in Glasgow Royal Infirmary, serving as house-physician under the late Sir William Gairdner, and as house-surgeon under the late Dr. Dewar. At the expiry of his term of office he visited the continental medical schools, studying at the Universities of Berlin and Paris, and afterwards at University College, London. He first settled in practice on the south coast of England, but went at a later date to London, where he gave himself mainly to the study of tuberculosis and the problems of public health. Dr. Heron held various hospital and other appointments. He was consulting physician to the City of London Hospital for Diseases of the Chest and to the National Sanatorium, Benenden; he was a member of the council of the International Board for

the Prevention of Tuberculosis; he was president of the London and Counties Medical Protection Society; and he was a Fellow of the Royal Society of Medicine. His published writings, dealing largely with tuberculosis and with questions of hygiene, were numerous, and appeared in many of the more important medical journals. Among them may be mentioned "Evidences of the communicability of consumption," published in 1890; "Therapeutic and diagnostic value of tuberculin in human tuberculosis," 1901; and his "Report on the teaching of elementary hygiene in training colleges and elementary schools of Great Britain and Ireland," and "Report on the incidence of tuberculosis in the British Royal navy and army," the former appearing in the *Transactions* of the sixth and the latter in those of the seventh International Congress for Tuberculosis.

CURRENT TOPICS.

MATRICULATION AT GLASGOW UNIVERSITY.—The number of men students who matriculated at Glasgow University for the current winter session shows a very marked decrease in consequence of the war, the figures up to 1st November being 1,055, as against an average of about 2,100 in recent years. Of these students, 852 are Scottish, 59 English, 5 Welsh, 10 Irish, and 129 come from abroad. The numbers in the various Faculties are as follows:—Arts, 242; Science, 191; Medicine, 516; Law, 44; Theology, 35; Arts and Science, 16; Arts and Theology, 2; Arts and Medicine, 2; Arts and Law, 1; Science and Medicine, 6. In session 1913-14, towards the close of which came the outbreak of the war, the Faculties were:—Arts, 776; Science, 501; Medicine, 657; Law, 178; Theology, 57—total, 2,171.

APPOINTMENTS.—The following appointments have recently been made:—

P. N. Grant, M.B., C.M.Glasg. (1892), to be Surgeon to the Out-patient Department for Diseases of the Throat and Nose, Glasgow Royal Infirmary.

Royal Navy (20th November): Temporary Surgeon A. Taylor, M.B., Ch.B.Glasg. (1908), to *Victory*, additional for Haslar Hospital, to date 22nd November.

24th November: Temporary Surgeon G. M'L. Blair, M.B., Ch.B.Glasg. (1897), to *Pembroke*, additional for Chatham Hospital, to date 26th November.

30th November: L. W. Gemmell, M.B., Ch.B.Glasg. (1915), entered as temporary Surgeon, to date 26th November (appointed 4th December to *Victory*, additional for Haslar Hospital).

Royal Army Medical Corps (9th November): To be temporary Lieutenants—R. R. Kilpatrick, M.B., Ch.B.Glasg. (1891); G. N.

Kirkwood, M.B., Ch.B.Glasg. (1905); J. W. Mathie, M.D.Glasg. (M.B., 1891); T. M. Crawford, M.B., Ch.B.Glasg. (1914).

18th November: To be temporary Lieutenants—A. G. Waddell, M.B., Ch.B.Glasg. (1911); S. C. Shanks, M.B., Ch.B.Glasg. (1915); A. Neilson, M.B., Ch.B.Glasg. (1912); W. Hornsby, M.B., Ch.B. Glasg. (1913); G. C. Stewart, M.B., C.M.Glasg. (1891); A. G. Henderson, M.D.Glasg. (M.B., 1912); E. J. Primrose, M.D.Glasg. (M.B., 1895); C. K. Stevenson, M.B., Ch.B.Glasg. (1907); R. B. Lothian, M.B., C.M.Glasg. (1888); K. N. MacLean, M.B., Ch.B. Glasg. (1914); A. M. Kennedy, M.D.Glasg. (M.B., 1908); G. T. Walker, M.B., Ch.B.Glasg. (1915); J. P. Mc Greehin, M.B., Ch.B. Glasg. (1915); D. J. MacDougall, M.B., Ch.B.Glasg. (1915); J. H. Murray, M.B., Ch.B.Glasg. (1915); R. K. H. Gillespie, M.B., Ch.B.Glasg. (1915); W. A. Higgins, M.B., Ch.B.Glasg. (1915); A. Dick, M.B., Ch.B.Glasg. (1915); H. L. McCormick, M.B., Ch.B. Glasg. (1915); N. W. Gilchrist, M.B., Ch.B.Glasg. (1915); K. McA. Ross, M.B., Ch.B.Glasg. (1915).

23rd November: To be temporary Captain—Temporary Lieutenant W. McC. Conley, M.B., Ch.B.Glasg. (1913). To be temporary Lieutenants—D. Meek, M.B., Ch.B.Glasg. (1912); H. C. Highet, M.D.Glasg. (M.B., 1888).

24th November: To be temporary Lieutenant—R. S. Dickie, M.B., Ch.B.Glasg. (1915).

26th November: To be temporary Honorary Lieutenant whilst serving with No. 2 British Red Cross Hospital—E. M. Eaton, M.B., Ch.B.Glasg. (1906).

2nd December: Temporary Lieutenants to be temporary Captains—P. Drummond, M.B., Ch.B. Glasg. (1910); W. A. Hislop, M.B., Ch.B.Glasg. (1909); P. H. Robertson, M.B., Ch.B. Glasg. (1903); T. M. Newton, M.B., Ch.B.Glasg. (1913); L. Crombie, M.B., Ch.B.Glasg. (1913); R. Craig, M.B., Ch.B.Glasg. (1913).

3rd December: To be temporary Captain—Temporary Lieutenant J. Lunn, M.B., C.M.Glasg. (1900). To be temporary Lieutenants—R. Forbes, M.B., Ch.B.Glasg. (1915); J. A. Maclean, M.B., Ch.B.Glasg. (1915); W. Barbour, M.B., C.M.Glasg. (1891); J. Moffat, M.B., C.M.Glasg. (1893).

4th December: To be temporary Major—H. J. Neilson, M.D. Glasg. (M.B., 1885).

7th December: Temporary Lieutenants to be temporary

Captains—H. Y. Riddell, M.B., Ch.B.Glasg. (1911); W. H. Kiep, M.B., Ch.B.Glasg. (1908); G. J. Wilson, M.B., Ch.B.Glasg. (1911); D. Clark, M.B., Ch.B.Glasg. (1908); C. D. Rankin, M.D.Glasg. (M.B., 1905).

R.A.M.C., Territorial Force (16th November): Scottish General Hospital—Captain A. J. Archibald, M.B., Ch.B.Glasg. (1911), is seconded for duty with an ambulance.

Scottish Command Orders (30th October): The following have been appointed Civil Medical Practitioners at the places mentioned:—J. Maclachlan, M.B., C.M.Glasg. (1886), Dornoch; M. W. Symington, M.B., C.M.Glasg. (1896), Johnstone; J. Gilmour, M.B., C.M.Glasg. (1891), Dalmuir; J. A. Clarke, M.D. Glasg. (M.B., 1897), Dunoon.

2nd December: The following have been appointed Civil Medical Practitioners at the places mentioned:—W. Stevenson, M.B., Ch.B.Glasg. (1908), Clydebank; W. Allan, M.B., C.M.Glasg. (1886), Govan; J. C. Murray, L.R.C.P. & S.I. (1908), Scotstoun; J. D. O. Wilson, M.D.Glasg. (M.B., 1894), Alloa; A. H. Hall, M.B., Ch.B.Glasg. (1914), Rothesay.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS.—At the annual meeting of the Royal Faculty of Physicians and Surgeons held on 1st November in the Faculty Hall, the following office-bearers were elected:—

President—Dr. Ebenezer Duncan. *Visitor*—Mr. J. Walker Downie. *Treasurer*—Dr. W. G. Dun. *Honorary Librarian*—Dr. Alexander Napier. *Representative to General Medical Council*—Mr. David N. Knox.

Councillors.—The President (*ex-officio*), the Visitor (*ex-officio*), the Treasurer (*ex-officio*), the Honorary Librarian (*ex-officio*), Mr. D. N. Knox, the Representative to the General Medical Council (*ex-officio*); (vacancy owing to election of Mr. J. Walker Downie as visitor), Dr. David Newman, Dr. James A. Adams, Dr. A. Freeland Fergus, Dr. Robert Jardine, Dr. John Barlow.

Finance Committee—The Treasurer (*ex-officio*), the President (*ex-officio*), Dr. Charles Workman, Mr. F. V. Adams, Dr. J. H. Teacher, Dr. George M'Intyre, Dr. John P. Duncan.

Library Committee—The Hon. Librarian (*ex-officio*), Dr. A.

Maitland Ramsay, Dr. Charles Workman, Dr. A. J. Ballantyne, Mr. J. H. Pringle, Mr. R. M. Buchanan, Dr. E. H. L. Oliphant.

Inspectors of Drugs.—Mr. T. Stewart Barrie, Mr. J. Mason Noble.

Committee of Management, Macarthur Bursary—The President, the Treasurer, Mr. D. N. Knox, and Mr. James Battersby.

Managers of Western Infirmary—Dr. William G. Dun and Mr. Archibald Sloan.

Directors of the Maternity Hospital—Dr. George Halket and Dr. William L. Reid.

Governors of the Victoria Infirmary—Dr. Ebenezer Duncan, Dr. H. L. G. Leask.

Mr. James A. McCallum, Clerk of Faculty; Mr. Alexander Duncan, LL.D., B.A., Secretary and Librarian; Mr. Walter Hurst, F.L.A., Assistant Secretary and Librarian; Mr. William Matthews, Officer.

The following examiners were also appointed:—

Board of Examiners for the Licence—Mr. Peter Bennett, Mr. James Muir, D.Sc.; Dr. A. Freeland Fergus—in physics. Mr. J. Robertson Watson, Mr. Thomas Gray, Mr. T. Stewart Barrie—in chemistry. Mr. B. G. Cormack, Dr. John Paterson, Mr. Leonard A. L. King—in elementary biology. Mr. James Battersby, Mr. Alex. McPhail, Mr. Arch. Young—in anatomy. Mr. Donald Duff, Mr. Wm. Ernest Thomson, Mr. Wm. Snodgrass—in physiology. Dr. Charles Workman, Mr. R. M. Buchanan, Dr. J. H. Teacher—in pathology. Dr. Alex. Napier, Mr. John P. Duncan, Mr. R. Barclay Ness—in materia medica. Dr. G. H. Edington, Mr. Henry Rutherford, Mr. D. N. Knox, Dr. James A. Adams, Dr. John Barlow—in surgery and surgical anatomy. Dr. E. H. L. Oliphant, Dr. G. Balfour Marshall, Dr. Robert Jardine—in midwifery. Dr. David McKail, Dr. Carstairs C. Douglas, Dr. John Glaister—in medical jurisprudence.

Clinical Examiners—The physicians and surgeons of the Royal, Western, and Victoria Infirmaries who are Fellows of Faculty.

Board of Examiners for the Fellowship—Dr. T. H. Bryce, Mr. James Battersby, Mr. Arch. Young—in anatomy (comparative and human). Dr. Wm. Ernest Thomson, Mr. Wm. Snodgrass, Dr. A. J. Ballantyne—in physiology. Dr. Walter K. Hunter, Dr. Charles Workman, Dr. John H. Teacher—in pathology. Mr. Henry Rutherford, Dr. John Barlow, Dr. James A. Adams

—in surgery. Dr. A. Freeland Fergus, Dr. John Rowan—in ophthalmology. Mr. J. Walker Downie, Dr. Thomas Barr—in aural surgery, &c. Dr. Carstairs C. Douglas, Dr. David M'Kail, Mr. Hugh Galt—in medical jurisprudence. Mr. W. Donald Anderson, Mr. David Fyfe—in dental surgery. Dr. W. R. Jack, Dr. Alex. Napier, Dr. J. W. Anderson—in medicine. Dr. David Yellowlees, Dr. J. H. Macdonald—in psychological medicine. Dr. A. K. Chalmers, Dr. John Glaister, Dr. John C. M'Vail—in State medicine. Dr. John G. Gray, Dr. George M'Intyre—in dermatology. Mr. R. M. Buchanan (with an examiner in pathology)—in bacteriology. Dr. G. Balfour Marshall, Dr. Samuel Sloan, Dr. Wm. L. Reid—in midwifery and diseases of women.

Examiners for the Diploma in Public Health—Dr. David M'Kail, Dr. John C. M'Vail, Mr. R. M. Buchanan, Dr. Carstairs C. Douglas, Dr. A. K. Chalmers, Dr. John Glaister.

Dental Board.—Dr. A. N. M'Gregor, Mr. A. G. Faulds—in surgery. Dr. John Henderson, Mr. John P. Duncan—in medicine and materia medica. Dr. A. J. Ballantyne, Mr. James Battersby—in anatomy and physiology. Mr. J. Mason Noble, Mr. W. D. Anderson—in dental pathology and surgery. Mr. W. W. Dickie, Mr. R. S. Grant—in mechanical dentistry. Mr. William Wallace, Mr. W. F. Mackenzie—in dental anatomy and physiology. Mr. Hugh Mackay, Mr. W. P. Hepburn—in dental metallurgy. Mr. Peter Bennett, Mr. Thomas Gray, D.Sc.—in chemistry and physics.

THE LATE PRINCIPAL M'CALL.—The death of Mr. James M'Call, founder and Principal of Glasgow Veterinary College, has removed from our midst one whose part in the public health administration of the city of Glasgow was that of a pioneer. The son of a carrier between Glasgow and Ayr, Mr. M'Call began his career in the office of a firm of lawyers in Ayr, but was led by his fondness for horses to desert the legal profession and to take a situation in Glasgow with Messrs. Pickford & Co., from which he rose to become manager of their horse department in London, where he had as many as 1,000 horses under his care. His interest in their medical treatment led him to study veterinary science in the Dick College, Edinburgh, and after he qualified in 1859 he began delivering lectures in Glasgow. From this beginning sprang the Glasgow Veterinary

College, for which he applied for a Charter in 1862, receiving it in the following year. Since that date the progress of the College has been rapid and steady, and at the opening of the session 1909-10 his efforts were rewarded by its transformation into a public institution approved by the Scotch Education Department, and with a duly appointed board of governors.

Principal M'Call held, among other public appointments, the office of inspector to Glasgow Corporation under the Diseases of Animals Acts, and it was he who in this capacity raised the first prosecution for the offence of exposing tuberculous meat. Owing largely to his efforts Glasgow was the first city to introduce market meat inspection and the licensing of city dairies, and he gave evidence before a Select Committee in London concerning Glasgow's management of these matters. He also gave evidence before various Royal Commissions, and during the period when Sir George Brown was head of the veterinary department of the Board of Agriculture he assisted in the drafting of the Tuberculosis Bill.

A man lovable, sincere, and simple, his work was of the highest value not only in the furtherance of the science to the practice of which his life was devoted, but to the health of the community, and of notable assistance to the medical profession in their conflict with human disease.

PROFESSIONAL CLASSES WAR RELIEF COUNCIL.—Distress becomes more apparent every day amongst the "luxury" professions, and men engaged in literature, journalism, music, and art are counted the greatest sufferers. The Professional Classes War Relief Council is doing practical work in supplementing the work of existing benevolent funds and professional associations by coming to the aid of those professional men and women who have suffered through the war. The centralised forms of assistance given include education of children, training, hospitality, and maternity assistance. Help cannot be given to any applicant, who being of military age and fit for service is neither already serving his country nor enlisted in Army Reserve B, or to those fit for employment on munitions or other war work who are unwilling to accept such employment. A number of men ineligible for the Army, and a few women on the register of the Professional Classes War Relief Council are

now being trained to take up work in insurance offices, and thus enable others to join the services under Lord Derby's scheme. The expense of training and, where necessary, maintenance are borne by the Council. All who are in sympathy with the work of this war relief organisation are asked to help by contributions and gifts in kind. Funds may be allocated for education, maternity assistance, training for women, training for men, temporary employment, music in war time, art in war time, and for special cases. Cheques should be drawn to the order of The Treasurer, The Professional Classes War Relief Council, 13 Princes Gate, and crossed "Messrs. Coutts & Co."

THE TERRITORIAL DECORATION.—It was announced on 11th December that His Majesty the King had been pleased to confer the Territorial Decoration upon Major D. J. Penney, M.B., attached to the 4th Highland (Mounted) Brigade Royal Garrison Artillery. Major Penney is a graduate of Glasgow University, where he took the degrees of M.B., C.M. in 1887.

GLASGOW MEDICAL CASUALTIES.—Two further casualties to Glasgow medical graduates fail to be recorded as occurring in the end of October.

Lieutenant D. T. C. Frew, M.B., R.A.M.C., attached Royal Irish Rifles, 2nd Battalion, is reported as wounded. Lieutenant Frew, who took the degrees of M.B., Ch.B., with honours, in 1911, after graduation acted as house physician and house surgeon in the Western Infirmary, Glasgow, and as house surgeon to the outdoor department of the Glasgow Maternity Hospital. He lectured in anatomy in the Western Medical School, and when he received his commission in May he was extra dispensary physician and clinical assistant in Glasgow Royal Infirmary.

Lieutenant L. L. Fyfe, M.B., R.A.M.C., is also reported wounded. Lieutenant Fyfe, who practised in the South Side of Glasgow, was a student of the University, where he took the degrees of M.B., Ch.B. in 1911. He received his commission in June, 1915.

TUBERCULOSIS AND WAR.—At a meeting of the Royal Victoria Tuberculosis Trust, held in Edinburgh on 30th November, Sir Robert Philip, in moving a vote of thanks to the lady collectors, said that twenty-four of their past patients were now serving with the Army. One man had been killed in France, and another, who was badly wounded, curiously enough came back to his old hospital for treatment. Another was "gassed," but in spite of his former lung condition after one week in hospital he was back in the firing line. Captain Leslie Lyall, M.B., R.A.M.C., said that between fifty and sixty former patients of the Royal Victoria Dispensary were with the colours.

In a recent issue of the *Journal* reference was made to the popular opinion that the hardships of war were likely to increase the prevalence of phthisis, and to accelerate the downward progress of those in whom it existed before enlistment. Facts like those adduced by Sir Robert Philip and Captain Lyall should go far to counteract this pessimistic attitude. They are not isolated; the writer of this note has seen in the military hospital with which he is connected several cases with a history of former cough and hæmoptysis and with a still existent apical dulness, but with no signs of active disease, and either with no expectoration or with a scanty sputum, free, even on repeated examination, from tubercle bacilli. Similar cases must have occurred in the experience of others, and they give ground for the belief that the percentage of tuberculous individuals who are injured by the military life is liable to be overstated. War, in fact, is fresh air treatment, although in its severest form.

GRANTS FOR MEDICAL TREATMENT OF NECESSITOUS SCHOOL CHILDREN.—Regulations have been issued by the Scotch Education Department regarding grants to school boards in respect of the medical treatment of necessitous school children during the year ending 31st December, 1916. The regulations state that the Department will make grants to school boards acting independently, or in combination with one or more other boards, or with the Secondary Education Committee for the district in terms of Section 3 of the Education (Scotland) Act, 1913. Grant will be paid on the basis of the approved expenditure of the local authority during the year ending 31st

December, 1916. The Department will require to receive from the local authorities a proposed scheme of medical treatment for the period in question, accompanied by a detailed estimate of the cost on the prescribed form. The scheme and estimate should reach the Department not later than 31st December, 1915. Where the proposals of the local authority are approved by the Department a careful record should be kept during the year of the number and nature of the cases treated (distinguishing as far as possible the necessitous and partly necessitous cases from any non-necessitous cases which may have been treated. A return will be required from the local authority before the grant is given. *Inter alia*, this information, together with a detailed account of the expenditure (as well as of the receipts in non-necessitous and partly necessitous cases) and payment of the grant, is conditional upon the receipt of this return on a form to be provided by the required date. Where a scheme of medical treatment has been submitted in advance to the Department, approved by them as suitable and adequate, and carried out to their satisfaction, grant will be paid at the rate of one-half of the net expenditure; in other cases the Department may either pay at a lower rate or withhold grant altogether. Where a local authority propose to provide special premises for the purpose of medical treatment, the annual charge on account of the provision of such premises may be included in the estimate submitted to the Department, but the Department will approve such expenditure only where the local authority are able to show that it is justified by the number of children for whom treatment must be provided in terms of the Education (Scotland) Act, 1913. Payment of grant under these regulations is subject to the fulfilment of the conditions laid down in the regulations, but if any of these conditions have not been fulfilled the Department may nevertheless, where there are special circumstances which would justify it, pay such grant as they may think fit. In assessing grant the Department may disregard any items of expenditure which in their opinion should not be taken into account for the purpose of the assessment. If any question arises as to the interpretation of these regulations, or as to the fulfilment of the conditions of grant, the decision of the Department shall be final.

MEDICAL INSPECTION OF AYRSHIRE SCHOOLS.—In his sixth annual report to the Ayrshire Secondary Education Committee, Dr. C. R. Macdonald, chief school medical officer for the county, states that owing to the depletion of the school medical inspection staff during the year the systematic examination of the children at the three specified age periods was not overtaken in the majority of the schools. As to a proposed county scheme for the employment of nurses, the committee had agreed that it should be held in abeyance during the continuance of the war, owing to the difficulty of obtaining a suitable staff. Sixteen school boards in the county had, however, made arrangements for the part-time assistance of the district nurses, while the School Boards of the burghs of Ayr and Kilmarnock had appointed whole-time nurses. The committee had had under consideration a scheme for the medical treatment of school children. It was considered advisable in the first instance to limit treatment to defects of the teeth and eyes. The scheme provided for two whole-time dentists and two part-time oculists, and the estimated cost was £830, half of which would be met by a grant from the Education Department. The question of the extension of the sanatorium buildings, with a special block for children, had been considered, and in the event of its being carried out it would be a further improvement if provision were made for the education of the children whilst under treatment in the institution.

NURSING WORK AMONG THE POOR.—The ordinary general meeting of the Higginbotham Sick Poor Nursing Association was held on 29th November in the Home, 218 Bath Street, Glasgow. Professor Rait presided. The directors, in the fortieth annual report, stated that the staff of district nurses had been reduced through nurses leaving to take up war work. Nurse E. T. Ferguson, a member of the staff, was mentioned in despatches in May, and recommended for the Royal Red Cross, a much coveted honour. The work among the poor continued to be carried on with earnestness and zeal. The cases treated during the year numbered 3,070, of which 2,693 were treated to an issue. The ordinary income for the year was £1,777, and there was a deficit of £1,310. The extraordinary revenue from

donations and legacies amounted to £847, and the deficiency on the whole income over the expenditure for the year amounted to £462. In the report of the Ladies' Auxiliary Association it was stated that the diminution in the number of cases attended during the year might be accounted for by the absence of many men at the front, and possibly by the fact that owing to there being more money coming in to many homes, more regular food was obtainable, and better health conditions followed.

The chairman, in moving the adoption of the report, spoke of the society's claim on the citizens in view of the splendid work it accomplished, and suggested that the motto during the war might be "Charity as usual." It was a matter of regret that the income had been so much less than the expenditure. In a generous city like Glasgow, that a society with such a record as the Association had was in such a position could only be due to its not yet having taken hold on the imagination of the people. In view of the work it had been doing for forty years it was difficult to know how that could have been. He did not think there was any profession, except perhaps the allied medical profession, where there was more devoted and self-sacrificing work than in the profession of Florence Nightingale and Edith Cavell.

Mr. David Murray, LL.D., seconded, and the report was adopted.

Resolutions were adopted commending the work of the Association to the support of the public, and thanking the medical men who had given their services, and the members of the Ladies' Auxiliary. The speakers included Dr. Samuel Sloan, the Rev. J. C. Murray, and Dr. Patrick.

CO-OPERATION OF TRAINED NURSES: GLASGOW MEMBERS ON SERVICE.—The twenty-third annual general meeting of the Glasgow and West of Scotland Co-operation of Trained Nurses was held on 18th November in Charing Cross Halls, Sauchiehall Street—Lady Stirling-Maxwell, president, in the chair. The report, which was submitted by Mr. G. Wink Wight, C.A., secretary, stated that there were 188 nurses on the roll on 1st October, 1914, 9 new nurses were elected during the year, 18 had resigned, and 179 were on the roll on 30th September

last. The number of cases attended during the year was 1,700, and the amount earned by the nurses £12,432. Since the establishment of the Co-operation in 1894, 31,995 cases had been nursed and £198,585 had been earned. Since the outbreak of the war 85 nurses on the staff had gone to Army service. A few more had offered, and were waiting to be called. Several of the nurses who had gone had been appointed matrons and charge nurses. The fact that so many nurses on the staff were on war service meant financial sacrifice both to the nurses and to the home. Compared with last year, there was a decrease of 369 in the number of cases nursed. The income of the home had been correspondingly reduced by £343, but there was a surplus of £165 on the accounts for the year.

Sir Samuel Chisholm, Bart., proposed the adoption of the report. He said this was the majority year of the Co-operation, and he congratulated them on the most useful work the members had done in those twenty-one years. Lady M'Innes Shaw seconded.

On the motion of Mr. Francis Henderson, seconded by Sir Andrew Pettigrew, office-bearers were re-elected, Mr. James Reid was elected vice-president, and Nurses Margaret Bird, Jean Dunlop, Helen Donald, and Janet Buchanan were elected members of executive committee, in room of nurses retiring by rotation.

Mr. J. A. Roxburgh, Dr. John Goff, and Dr. W. L. Reid, chairman of executive, also took part in the proceedings.

WESTERN INFIRMARY: ANNUAL MEETING AND REPORT.—The annual report of the Western Infirmary of Glasgow was submitted on 25th November to the annual meeting of qualified contributors, held in the Merchants' House under the presidency of Sir Matthew Arthur, Bart. On the financial side its chief feature was an increased deficit on the year's working. The ordinary income amounted to £25,037, 11s. 11d., and the ordinary expenditure to £46,152, 4s. 5d., leaving a deficit of £21,114, 12s. 6d., as compared with £20,654, 9s. 10d. in the previous year. The contributions from subscribers showed an increase of £508, 13s. 11d. The extraordinary income totalled £15,823, 11s. 3d., and the extraordinary expenditure £1,606, 4s. 8d., the balance

of £14,217, 6s. 7d. being transferred to meet the deficit on the ordinary income. On the extension fund the balance from last year was £24,370, 2s., the subscriptions received during the year amounted to £3,515, and the interest was £250, 13s. 9d., or a total of £28,135, 15s. 9d.; while the payments during the year on the new admission block amounted to £13,936, 9s., leaving a balance of £14,199, 6s. 9d.

The managers regretted that the ordinary income and the balance of the extraordinary income combined were insufficient to meet the ordinary expenditure, and that it was necessary to draw on capital account to the extent of £7,005, 3s. 10d. to make good the deficit, thus reducing the unrestricted capital funds at the disposal of the managers to £4,159, 19s. 10d. There was an increase in the ordinary income of £1,539, 18s. 10d. The ordinary expenditure of £46,152, 4s. 5d. was £2,000, 1s. 6d. in excess of the previous year, which was accounted for by the larger number of indoor patients treated, the higher cost of provisions, coal, drugs, &c. To avoid a realisation of securities in the present unfavourable state of the market the managers had overdrawn the bank account to the extent of £3,678, 10s. 1d. Forty-four beds in the infirmary had been permanently endowed, most of them in memory of deceased relatives of the donors. A bed was added during the year in memory of the late Mr. David Sturrock. The managers commended to those interested in the continued usefulness of the infirmary this method of increasing the funds available for maintenance. The new connecting block now nearing completion contained an admission and casualty department, for which the managers were indebted to the trustees of the late Mr. Edward Davis, who generously granted the sum of £16,000 for this purpose. The block also contained three lecture rooms and three operating theatres. One of these operating theatres was the gift of Mr. William Robertson at a cost of £3,500 to complete the unit with which his name was already associated as the donor of a ward. Like similar institutions all over the country, the managers had placed at the disposal of the military authorities 100 beds for sick and wounded soldiers, which had been occupied from time to time by drafts of men direct from the front. This had been accomplished without seriously interfering with the ordinary work of the institution.

The indoor patients treated during the year numbered 9,692, compared with 9,591 the previous year, and the outdoor patients 26,958, as against 27,676 in 1913-1914, making the total number of patients treated during the year 36,650, compared with 37,267 in the previous year. The visits paid by outdoor patients numbered 100,091, as against 118,336 in the year 1913-14. The average daily number of in-patients was 556, as compared with 546 last year. The greatest number of patients in the hospital on one day was 655, and the smallest 462. The average period of residence of each patient was 20·94 days, against 20·79 days last year. The number of deaths was 676, or 7·46 per cent of all cases treated to a termination. Of the fatal cases, however, 191 were of such a hopeless character when brought to the hospital that the patients died within forty-eight hours after admission. Deducting this number, the death-rate was reduced to 5·47 per cent. Of the indoor patients treated, 2,054 were medical, 6,712 surgical, and 297 gynæcological. There were 900 persons vaccinated. There was a daily resident staff of 342, making a daily average of 898 persons resident in the infirmary. The non-resident staff engaged during the year numbered 448. The average cost per patient was £4, 15s. 3d., compared with £4, 12s. 1d. in the previous year.

The managers had received with much regret the resignation of Dr. J. Crawford Renton, who had been associated with the infirmary for thirty-nine years, and put on record their grateful thanks for his valuable services and untiring devotion to the interests of the institution. Dr. John Morton had been appointed visiting surgeon in his place. Dr. John Gracie was appointed an assistant physician. The great majority of the medical and surgical staff were engaged in war service, either at home or abroad. In connection with the Training School for Nurses, 1,211 applications were received from candidates desiring admission as probationers, and the number of vacancies was 90. Of the nursing staff, 46 members were serving in connection with the military hospitals at home or abroad.

The Lady Hozier Convalescent Home at Lanark (which is managed by the Western Infirmary, and is now an integral part of the infirmary) was, in 1891, built, equipped, and partially endowed by the late Lord Newlands (then Sir William Hozier) in memory of his wife. In 1914, Lord and Lady Newlands, in

commemoration of their Majesties' visit to Glasgow and Lanarkshire in July of that year, gifted £25,000 to the Western Infirmary for the purpose of completing the endowment of the Lady Hozier Convalescent Home. With the full concurrence of Lord and Lady Newlands, the managers offered the Lady Hozier Home to the military authorities for use as a convalescent home for sick and wounded soldiers during the period of the war. The offer was accepted, and the home had been made full use of for this purpose. There were 42 beds in the home, and during the year 274 sick or wounded soldiers enjoyed the great advantage of an average residence of twenty-nine days each. The total number of days' residence was 8,114.

In proposing the adoption of the report, Sir Matthew Arthur said that it showed how the work of the infirmary continued to grow. The number of indoor patients treated during the year, and the average daily number in residence, constituted a record for the Western Infirmary. After referring to the number of wounded soldiers treated in the institution, he said that the large building connecting the new wing with the rest of the infirmary was now nearly finished, and they at last saw the building scheme on which they had been engaged for so many years approaching completion. All that might be regarded as satisfactory, but it was the question of finance that filled the managers with anxiety. The ordinary expenditure last year was £46,152, also, unfortunately, a record. It was almost exactly £2,000 more than the preceding year; not a very large increase when they considered the higher cost of food, drugs, and coal, and that with the staff and the additional number of patients there was a daily average of 898 persons resident in the infirmary. He thought the result testified to the care exercised by the medical superintendent, Colonel Mackintosh. Their ordinary income was only £25,037. They could not ascribe to the war much of the great difference between ordinary income and ordinary expenditure. The subscriptions and donations for last year showed no decrease, and all they could say was that there had been a want of expansion. The real reason for the financial position was that the work and the number of patients treated had increased much more rapidly than the public had realised, and so the support given to the infirmary had not been commensurate with its growth. With so small a margin on

hand, it was necessary to make a strenuous appeal for increased subscriptions for maintenance, for no one could contemplate with equanimity any lessening in the efforts for the relief of the sick and suffering.

Sir John Ure Primrose, Bart., who seconded, said that notwithstanding the many additional financial burdens that had come upon the community, he was hopeful they would not allow such beneficent institutions as their infirmaries to suffer.

Mr. J. A. Roxburgh, convener of the House Committee, proposed a vote of thanks to the staff of the infirmary. He expressed appreciation of the support they had had during the year from Colonel Mackintosh and from the matron, notwithstanding the fact that both had been very busy on important war work.

Mr. Arthur Hart seconded.

A vote of thanks to the donors and subscribers was proposed by Mr. David Johnston, and seconded by the Rev. Dr. J. A. Hutton.

Sir Archibald M'Innes Shaw proposed, and Sir Hector Cameron seconded, that Mrs. Hall, Messrs. David Johnston, William Robertson, Thomas Russell, Andrew Welch, Sir George T. Beatson, M.D., K.C.B., Messrs. R. Hunter Dunn, Henry Mehan, Nicol Paton Brown, Daniel Harvie, and John Hill be reappointed managers for the current year; and that Mrs. Clapperton, Messrs. Lawrence Glen and Arthur Hart be appointed to fill the remaining vacancies in the board.

The resolutions were adopted.

Deacon Convener Hugh Alexander proposed a vote of thanks to the chairman. With regard to the falling off in workmen's subscriptions, he reminded the meeting that 60,000 workmen had gone from the city to the war.

VICTORIA INFIRMARY: ANNUAL MEETING AND REPORT.—The annual meeting of the court of contributors to the Victoria Infirmary, Glasgow, was held on 2nd December in the Merchants' House, Glasgow, under the presidency of Lord Provost Dunlop. The Honorary Secretary, Mr. William Gray, submitted the twenty-eighth annual report, which stated that the total number of patients treated in the wards was 4,015, as

compared with 3,959 in the previous year, an increase of 56. In addition, 916 cases of minor accidents were treated surgically. X-ray and electrical treatment formed an important part of the work carried on in the infirmary. During the year the average number of patients treated daily was 17, involving 5,080 consultations, as compared with 19 and 5,966 respectively in the previous year. At the Infirmary dispensary for outdoor patients 3,045 individual cases were dealt with, involving 9,807 consultations. The corresponding numbers for the previous year were 3,248 and 11,757 respectively.

The following comparative figures show (1) the average daily number of patients; (2) the average cost per patient; (3) the average cost per occupied bed; and (4) the average length of residence per patient, during the past year and the previous year, viz. :—

	(1)	(2)	(3)	(4)
1913-1914, -	260	£4 18 6	£75 0 3	25·7 days.
1914-1915, -	259	5 10 6	80 6 9	24·8 days.

At the Bellahouston Dispensary, which continued to be a great boon to the sick poor on the south-side of the city, 7,721 patients were treated, as compared with 8,450 in the previous year.

The Home at Largs continued to be a valuable adjunct to the infirmary. During the year 587 patients in a state of convalescence were transferred to it.

The ordinary income was—from the infirmary, £13,166, 9s. 5d., as compared with £12,782, 16s. 2d. in 1913-1914; from the Bellahouston Dispensary, £66, 0s. 4d., as compared with £59, 15s. 6d.; and from the Convalescent Home, £257, 2s. 6d., as compared with £273, 5s. 4d. The ordinary expenditure was—for the infirmary, £20,807, 11s. 0d., as compared with £19,503, 14s. 1d.; for the Bellahouston Dispensary, £803, 5s. 9d., as compared with £775, 6s. 5d.; and for the Convalescent Home, £1,069, 10s. 4d., as compared with £1,105, 3s. 0d. The total ordinary income was thus £13,489, 12s. 3d., and the total ordinary expenditure £22,680, 7s. 1d., leaving a deficit of £9,190, 14s. 10d. The extraordinary income was £3,189, 3s. 7d., as against £23,294, 14s. 10d. in 1913-1914; and the extraordinary expenditure was £706, 7s. 1d., as against £3,577, 4s. 8d.

The total income therefore amounted to £16,678, 15s. 10d., and the total expenditure to £23,386, 14s. 2d., leaving a deficit of £6,707, 18s. 4d., as compared with a surplus in 1913-1914 of £11,451, 3s. 8d. Mr. Gray said that almost for the first time they had had to draw on their capital, to the extent of £6,000. He hoped subscriptions next year would show an increase.

The Lord Provost proposed the adoption of the reports. It was not to be wondered at, he said, that at such a time they had to face a deficit. It had been said that the working people were not subscribing any more than they should do towards the hospitals, but when they considered that their total was only £114 behind what it was in the previous year, and that perhaps 100,000 men were at present out of the city, it appeared to him that the workmen must be subscribing rather more at present than in the past. At the same time he did not think they were subscribing more than they might give. Wages were exceedingly good, and if every workman on the Clyde said there was no better object than the hospitals for their support and decided to give one penny per week more than at present, a vast sum of money would be raised. On reading the list he found rich firms down for £1, £2, or £3—seldom for more than £5, 5s. He did not think that was all they could give. It sometimes became fashionable to give large sums to a bazaar to clear off a heavy debt on an institution. He suggested that it would be better if people who gave £1 before would give £5, and those who gave £5 before would give £10 to keep an institution from going into debt rather than wait to be called upon for £1,000 to clear off a large debt. The action of the Governors in providing accommodation and treatment for wounded soldiers was to be commended. He was sure the citizens, notwithstanding the many claims on them, would desire above all things that the great hospitals of Glasgow should not be neglected.

Mr. James McFarlane seconded. He agreed with the Lord Provost that many people could easily double their contributions. The reason why they did not give more was not want of liberality but want of thought. If the three great infirmaries were to invite representatives of the various trade unions and prominent citizens to visit the wards and see what was being

done there, it might lead to increased support. He hoped the Lord Provost would use his influence with the Town Council to get them not only to maintain but to increase their contributions.

The Rev. John MacGilchrist, Govan, proposed a vote of thanks to donors and subscribers. He said that notwithstanding the bad weather on Hospital Sunday the working class congregation of Govan increased their contribution by one-sixth, and if the same increase was general throughout the city the gain would be substantial.

Archbishop Maguire seconded. He said that brotherly charity, which all denominations manifested in Glasgow, was a valuable asset in their city.

On the motion of Mr. H. A. Lamberton, seconded by Mr. Robert Graham, a vote of thanks was awarded to the medical staff.

Dr. Grant Andrew, in acknowledging the vote of thanks, said the staff was very much depleted owing to the war—it was only about half what it was previously. Three of their staff of visiting surgeons and doctors were engaged at Stobhill. A Scottish Command was issued the other day that they were to hold themselves in readiness for whole-time service. He hoped that day was far distant. Up till now they had been able to take duty at both institutions.

Ex-Deacon Convener Beattie proposed that Lord Rowallan, Dr. Charles E. Robertson, Mr. William Gray, and Mr. Robert Mason be re-elected Governors.

Dr. Ebenezer Duncan seconded. He said he believed the time was near when there would be a considerable call on the services of the younger members of their hospital staffs. There was great need for medical men for the new Army, and he believed that in a short time all under 45 who could possibly be spared would be called. That would put their hospitals in a considerable difficulty, and they were indebted to the services of those who took the responsible position of Governors.

The Lord Provost, replying to a vote of thanks proposed by Dr. John Hutchison, referred to the proposal by Glasgow Corporation to reduce its contributions to infirmaries. He said he would not indicate now how he would vote on the question,

but he hoped the Town Council of Glasgow would always give a lead to the citizens in regard to contributions to charities.

GLASGOW WOMEN'S HOSPITAL. — The thirty-eighth annual meeting of the Glasgow Hospital for Women was held on 4th November at 29 Elmbank Crescent—the Rev. Walter R. Lacey presiding. Among those present were Mr. William Gillies, Mr. Malcolm Campbell, Dr. Samuel Sloan, Mr. William Shaw, Mrs. J. Graham Girvan, Mrs. Farquhar, Dr. Scott McGregor, Miss Taylor, Colonel Samuel Sloan, Mr. H. Stuart Girvan, honorary secretary, and Mr. A. C. Lamb, honorary treasurer.

Mr. Girvan submitted the annual report, in which it was stated that the outdoor consultations and indoor treatments without operation numbered 3,188. The number of operations was 118. The total ordinary expenditure amounted to £666 and the total ordinary revenue for the period amounted to £568, showing a deficiency of £98. The number of subscriptions from employees in public works was still short of what might be expected. In making a special appeal to them, the directors desired to point out that the patients of the hospital consisted almost entirely of the wives and daughters of working men. The institution possessed the advantages of quietness and privacy, which were largely appreciated by many women, who shrank from applying to a large general hospital for treatment, owing to the necessary publicity incidental to the clinical instruction in these institutions. The directors appealed to the public to make the institution better known, so that the annual income might be increased, and the annual expenditure met out of the ordinary revenue.

The chairman, in moving the adoption of the report and financial statement, said that if there was one institution in the city that carried on its work economically it was the Hospital for Women. He noticed, according to the report for the preceding year, that out of a total expenditure of £644 no less than £155 had been contributed by the patients. Roughly speaking that was one-quarter of the entire expenditure which was contributed by those who were ministered to in the institution. That was an admirable feature of the hospital.

Dr. Sloan seconded, and the report was adopted. Mrs.

Stephen Mitchell, Mrs. Graham Girvan, and Mrs. A.W. Farquhar were re-elected to the Board of Directors, and Mr. R. J. Cunliffe and Mrs. Warren were also appointed to the Board.

GLASGOW LOCK HOSPITAL: OPENING OF OUTDOOR DISPENSARY. —The directors have now opened a dispensary at the Lock Hospital at 45 Rottenrow for the treatment of outdoor patients suffering from the various forms of venereal disease. Structural alterations of the buildings have been completed, providing waiting-room accommodation and a fully equipped treatment room. The Corporation of Glasgow have kindly granted a right of way to the dispensary through adjoining property belonging to the city, so that patients may enter without having to pass through the hospital. The Lock Hospital, or Hospital for Women as the patients prefer to call it, is the second oldest medical institution in Glasgow, having been founded by Seal of Cause from the Magistrates and Town Council in 1805, ten years after the opening of the Royal Infirmary.

REVIEWS.

Sanitation in War. By Major P. S. LELEAN, F.R.C.S., R.A.M.C., Assistant Professor of Hygiene, Royal Army Medical College. With an Introduction by Surgeon-General Sir ALFRED KEOGH, K.C.B., M.D., F.R.C.P. With 39 Illustrations. London: J. & A. Churchill. 1915.

OF late much has been thought, said, and even written regarding the medical arrangements of our army, and from criticism some have descended to violent denunciation. It is a pleasant change from a heated atmosphere to consider the "unpretentious little volume" now before us.

The story of its genesis is briefly told in the introduction by Surgeon-General Sir Alfred Keogh. As everyone knows, it has been necessary largely to increase the medical staff of the army by calling for volunteers. Men in all grades of the profession offered their services. But, however brilliantly equipped for civil practice—and it cannot be denied that many admirably qualified responded to the call—nearly all, or at any rate a very large proportion, of them were entirely ignorant of military medical work, and of one of the chief parts thereof, viz., sanitation in the field. Deficiency in this respect being fatal, the War Office organised a series of lectures at the Royal Army Medical College, Millbank, and these were largely attended not only by the temporary medical officers, but also by numbers of R.A.M.C. officers, both regular and territorial.

The duty of giving the lectures was entrusted to Major Lelean, the Assistant Professor of Hygiene at the Royal Army Medical College, and the writer of the present notice was privileged, shortly before proceeding overseas, to attend one of Major Lelean's courses. He derived so much benefit from it that he, in common with many others, expressed the hope that the lectures would be published not only for the benefit of, as Sir Alfred Keogh puts it, "those who have been unable to attend

the various courses," but also as a means of refreshing the knowledge gained at the course. But, as Major Lelean tells us in his modest preface, the "many appeals for publication fell upon deaf ears until a wish expressed by 'higher authority' led to the production of this unpretentious little volume."

The subject-matter is arranged in the form of nine lectures. The first lecture deals with physical fitness for war, and includes such subjects as training, causes of physical failure, food, clothing, and boots. This lecture is a good introduction to military medicine. It brings the reader at once into contact with problems regarding the general fitness, comfort, and well-being of the soldier, problems which rarely, if ever, obtrude themselves in civil practice.

Lecture II deals with anti-typhoid inoculation, and the information which it gives to medical officers will be found of great use when in the course of their duty they have, as at present, to explain, exhort, and in some cases almost to coax the men under their care to submit to inoculation. We personally have experienced the humiliation of having to listen to the opinions born of ignorance and deficient education, and delivered with the smug complacency which marks the offspring of such parentage, and we cannot refrain from quoting the lecturer on this very point. "In face," he says, "of the overwhelmingly convincing mass of statistical proof of the value of this means of protection, one can only look eagerly for the day when our men will be saved from their own vacillation, and rescued from the sinister influence of the anti-everything busybody by having prophylactic anti-enteric inoculation made compulsory. Meanwhile the medical officer—already overtaxed by duties sufficiently strenuous—must undertake the thankless task of persuading men to voluntarily adopt a measure which not only protects themselves from a grave danger, but protects the whole army in the field from the risk thrust upon it by the obstinacy of the recalcitrant whose sole argument against protection is the parrot cry of 'I don't hold with it'" (p. 60).

Lecture III deals with the march, and all that it implies in the way of expenditure of energy, and also shows the way in which such loss is made up.

Lecture IV is devoted to the subject of sickness in the army in peace time and in war. Naturally, infective diseases bulk

most prominently, and it is here clearly shown what results have followed on the preventive measures recommended and carried out by the army medical officers.

In Lecture V the rôle of insects in war is gone into. And chief among all others is the skatophagic fly, and the part it plays in disseminating enteric fever. This insect's life-history and habits are related in detail, and we believe that the dissemination of the facts set forth in this lecture would be of immense value not only to all ranks of the army, but also to our civil population. To anyone having experience of field conditions this lecture will appeal as giving the essentials.

Lecture VI deals with the very important subject of medical organisation and administration in the field. A knowledge of this subject is essential to the proper working of the medical department of the army. And here we would at once dissociate ourselves from the armchair critic who contentedly sits in his smoking-room and rails at the "red tape" of the service. It is true that there are many "reports," "returns," and "states" demanded from the medical officer, and sometimes it needs an effort to view these with philosophic calm. But no large business with any pretensions to being well run can exist without organisation. It is necessary, therefore, for all in the service loyally to co-operate in the running of the machine, and unless the organisation be mastered and acted upon matters would soon be in a chaotic state.

Conservancy in the field is the subject of Lecture VII. As the lecturer remarks (p. 183), "The acquaintance of an ordinary household with conservancy methods consists in the daily pulling of a handle and a weekly listening to the opinion of the dustman regarding the dryness of his job. Consequently, when the householder is faced by the problem of disposing of his own excreta his bewilderment is only equalled by his inertia."

Newly-joined medical officers will find much in this lecture of the first importance.

Lectures VIII and IX deal with water and water supplies, and are replete with valuable information.

Here and there throughout the volume it is clear that the lecturer has in his mind's eye the conditions in France and Flanders. Those officers whom fate has posted to the townless and houseless Peninsula of Gallipoli are in somewhat different

surroundings. Nevertheless, the principles expounded by Major Lelean hold good anywhere.

Without or within there is nothing meretricious in this book. Externally there is neither "gilt" nor "extra;" a small volume in serviceable khaki linen, with black titling, a book which can (and doubtless often will) be slipped into the pocket of the field service jacket. Within, good plain type, and simple practical illustrations such as wall-diagrams are made from. The matter is excellent, and although conciseness is aimed at, the author has not allowed conciseness to stifle his sense of humour.

Medical officers owe a great deal to Major Lelean, and the army will reap the benefit.

We gladly take this opportunity of publicly expressing to him our thanks for the lectures, and our obligation to the "higher authority" to whose wishes we owe their appearance in print.

Injuries of the Eyes, Nose, Throat, and Ears. By ANDREW MAITLAND RAMSAY, M.D., J. DUNDAS GRANT, M.D., H. LAWSON WHALE, M.D., and CHARLES ERNEST WEST, F.R.C.S. Eng. Oxford War Primers. London: Henry Frowde and Hodder & Stoughton. 1915.

THIS small manual is intended to guide those, not being specialists, upon whom falls the first treatment of the injured in war. It well fulfils its purpose. The advice given is sound, and it could not be more clearly stated. At the same time we entirely agree with Maitland Ramsay's dictum, extending it to the other specialties:—"The sooner the patient can be placed under the care of an ophthalmic surgeon the better." Shots at specialist surgery, as indeed at all surgery by the uninitiated, are even more reprehensible in dealing with soldiers than in dealing with patients in civil practice, because in the former case there is no reason why there should not be a sufficient number of specially trained surgeons for the work.

In the section on injuries of the eyes we commend the clear manner in which the author discusses the indications for enucleation.

The section of diseases of the nose and throat is illustrated by

several valuable diagrams demonstrating the intricate anatomy of these parts, on an intimate knowledge of which success in dealing with injuries of these regions depends. A number of interesting cases are described in detail.

The section on injuries of the ear is short, but contains advice good and shrewd, the author fully recognising for whom it is written. We quote one passage which has an application outside the scope of the manual—"It is remarkable with what completeness the possession of an antecedent middle-ear deafness seems to screen the labyrinth from damage by explosion." The value of this observation, with which our own experience agrees, on the medical examination of recruits, as far as the ear is concerned, is evident.

We think more might have been said on deafness from nervous shock, and we should like to have seen reference made to simulated deafness as a form of malingering, though, in view of the difficulties, this is probably a matter altogether for the specialist.

Obstetrics. Edited by J. B. DE LEE, M.D., with the collaboration of H. M. STOWE, M.D. Practical Medicine Series. Vol. VII. Chicago: The Year Book Publishers. 1914.

OBSTETRICS now forms Vol. VII of the Practical Medicine Series instead of Vol. V as hitherto, and along with the other nine volumes of the series appears annually. It gives a review of the previous year's literature up to the month of July, 1914, and a glance at the "Index of authors" indicates that a wide field has been covered by the editor from which he has selected abstracts. These abstracts have been judiciously chosen from the copious literature of Europe and America, so that the reader has presented to him within suitable compass the important advances in the theory and practice of obstetrics.

We note amongst other interesting matter that the reports on the value of Abderhalden's test for pregnancy are still contradictory, and that there is nothing new to record regarding eclampsia.

The numerous papers on the subject of puerperal sepsis show this complication of parturition still remains a serious one, and

the questions of origin and of the correct lines of treatment are still under discussion. It is evident that pituitary extract is now extensively given during the first and second stages of labour: but experience proves it to be a powerful drug, and of great danger when employed in unsuitable cases, since improper use has resulted in tetanus uteri, rupture of the uterus, and severe lacerations of the cervix and perineum.

We can cordially recommend this annual, not only to the general practitioner, for whom the Practical Medicine Series is primarily published, but to specialist and teacher as well.

Principles of General Physiology. By WILLIAM MADDOCK BAYLISS, M.A., D.Sc., F.R.S. London: Longmans, Green & Co. 1915.

THIS is certainly the most wonderful text-book of physiology that has ever appeared in the English language or, indeed, in any other language. Constant reference is made in the ordinary text-books to the principles of physiology, but without, as a general rule, any attempt being made to define or enumerate these principles. Professor Bayliss, one of the best of English physiologists, has now put into the hands of workers a volume of inestimable value, a volume literally crammed from cover to cover with information on the fundamental facts. It can be said without fear of contradiction that never before has such a mass of original work in all languages and in all lines of physiology, both direct and collateral, been set forth.

The handling of this enormous mass of material naturally presents great difficulty, and this is where one feels that Professor Bayliss has not done himself justice. The book, long as it is (734 pages), could have been considerably increased with advantage, if the extra space had been taken up in welding the material together, even at the cost of some "padding" and redundancy. The usual complaint is that "padding" is too predominant a feature, but the volume under discussion is almost spare. The facts are all there, but they are there like jewels without an appropriate setting. The

only other complaint of the present reviewer is that too great and too wide a knowledge of mathematics, physics, physical chemistry, and chemistry is presumed on the part of the general reader. A little more detailed explanation would have been hailed with joy.

As regards the scope of the volume. There are twenty-four chapters dealing with such apparently diverse problems as energetics, surface tension, electrolytes, enzymes, nutrition, secretion, excitation and inhibition, nervous system, reflex action, action of light, circulation, respiration, &c. In each chapter the most vital points at issue are discussed with the width of knowledge and the vigour and honesty that one associates with the work of Dr. Bayliss, and each chapter closes with a most concise summary of the material discussed. Needless to say, there is very full reference to the literature of the subject; at the end of each chapter the principal sources are referred to, and at the end of the book there is a complete list of the papers cited, which runs to 82 pages. The index is full and good.

The "get up" of the book is not one of the least remarkable of its features. The author, the publishers, and the printers are all to be congratulated on its appearance. The paper is good and the illustrations, whether they be diagrams or portraits, and there are no less than twenty-seven of these of well-known scientists like Arrhenius, Descartes, Ehrlich, Helmholtz, Lavoisier, Ludwig, and Sherrington, are excellent. The printing is very clear and remarkably free from error.

Altogether Professor Bayliss is to be congratulated on the production of a most notable contribution to scientific literature.

Dental Diseases in Relation to Public Health. By J. SIM WALLACE, D.Sc., M.D., L.D.S. London: Published at the Office of *The Dental Record*. 1914.

DR. SIM WALLACE'S little book, which consists of three communications written for the recent International Medical Congress, the Exeter meeting of the Royal Sanitary Institute, and the annual meeting of the British Medical Association in

1912, is a further exposition of his views on dental hygiene. In this subject he was one of the pioneers of the new teaching, and it must be a source of much satisfaction to him that advanced opinion, both medical and dental, now recognises the correctness of the position he has so long maintained. The volume deals mainly with the effects of dental diseases upon general health, and with the preventability of dental caries. It lays stress upon the unphysiological nature of the usual diet of young children, and shows how merely by appropriate alterations in this respect, and by continued attention to mastication throughout life, dental caries may be very largely prevented, and the suffering and ill-health produced by it minimised if not abolished. It insists upon the necessity of oral hygiene, and deplores the neglect of the functions of the mouth in the current text-books of physiology, and it closes with a brief chapter on the prevention and treatment of dental disease in children. The importance of the book is not to be measured by its size; it is in fact a contribution to pædiatrics which should be in the hands of every public health authority and school medical officer.

The Heart in Early Life. By G. A. SUTHERLAND, M.D., F.R.C.P.
Oxford Medical Publications. London: Henry Frowde and
Hodder & Stoughton. 1914.

"THIS book is an attempt to enable the young practitioner to fill up some blanks which may have been left after his medical course has been finished."

After a perusal of this book we feel sure that most practitioners will feel that there have been many blanks left in their medical education. The section of the work dealing with organic heart disease brings the subject quite up to date, and full use has been made of the more modern methods in the interpretation of the different disorders of cardiac mechanism. The chapter on treatment in this part is well worthy of study, and gives clear indications of its possibilities and of its limitations.

Perhaps the most valuable section is that devoted to a consideration of the functional disturbances of the heart.

While it is true that the failure to recognise disease of the heart and to omit the necessary treatment may be serious, still it is no less important to recognise that cardiac murmur or irregularity may be present without any heart disease; otherwise the patient may have his whole life limited, and even his ordinary health impaired by unnecessary restrictions. These possibilities are dealt with in a masterly fashion, and numerous convincing examples are noted from the author's case-book.

The volume is published at a very moderate price, and should prove one of the most successful of the series.

We have great pleasure in recommending it to all practitioners of medicine as well as to those interested in this special department.

The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Thirty-first annual issue. London: Charles Griffin and Co., Limited. 1914.

THIS annual is a storehouse of information. Not only does it contain particulars of the societies themselves, but it gives a list of the papers contributed to them. Every department of science, literature, and medicine is served, and great care has been taken to make the compilation as accurate as possible.

While a glance through the volume is at once instructive and interesting, its chief use to most is as a book of reference, and they will doubtless be content to consult it at the nearest library.

A Treatise on Hygiene and Public Health. By Drs. B. N. GHOSH and J. L. DAS. Second Edition. Calcutta: Hilton & Co. 1914.

THIS text-book has been written by two Indian teachers, and is prefaced with an interesting introduction by Colonel Kenneth Macleod.

Their object is to supply, in moderate compass, all the important facts of hygiene and sanitation with special reference

to the tropics. This they have accomplished in a highly creditable fashion, considering the condensed nature of the work. There are many references to Indian conditions, and the food and diet in India is dealt with at some length.

In the chapters on housing, collection and disposal of refuse and sewage, disposal of the dead, and the prevention of infectious diseases, the Oriental problems are described, and suitable solutions recommended.

In the chapter on water, which begins the book, wells are very fully dealt with, and the examination of water is clearly summarised. In a future edition Houston's work on purification by storage should be referred to, although storage in hot climates is not so easy as in our own country. Altogether, the book is a reliable guide to the subject of hygiene generally, and with special applications to our Indian dependency and the tropics. There are a number of good illustrations.

On page 63, lines 6 and 8, "area" should be "content" or "space."

Le Laboratoire du Praticien : Analyse Clinique—Méthodes et Procédés. Troisième Fascicule. Par PAUL GASTOU. Paris: A. Poinat. 1914.

THIS is the third part of an atlas with explanatory text issued by M. Paul Gastou, head of the central laboratory of the famous hospital of Saint-Louis. It illustrates with great clearness the various findings which are to be met with in the chemical and microscopical examination of urines; in the ultra-microscopic investigation of colloids, of secretions and excretions, and of fæces; in the histo-chemical analysis of tissues and tumours; in the interpretation of histological lesions; and in serum diagnosis and the agglutination method. The 18 plates, containing 319 figures and photographs, afford a wonderfully complete graphic presentment of these subjects, and the possessor of this and the two preceding parts will have in his hands a valuable aid to the practice of the clinical laboratory.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

EDITED BY ROY F. YOUNG, M.B., B.C.

OBSTETRICS AND GYNÆCOLOGY.

An Unusual Degeneration of the Cervix.—Dr. Alfred Smith (*Dublin Journ. Med. Science*, September, 1915) exhibited to the Royal Academy of Medicine in Ireland a uterus removed from a xvi-para of 60 years of age. The patient had complained of a slimy discharge for about six months, but not of hæmorrhage, and there was no offensive odour. On vaginal examination it was found that there was no apparent vaginal portion of the cervix, which was flush with the vaginal vault; the os was patulous, admitting two fingers; there seemed to be no os internum, and a large uterine cavity with a mucosa like velvet. This examination caused hæmorrhage, and the curette brought away a large quantity of brain-like material which the pathologist reported to be non-malignant. After hysterectomy the cervix was found to be 8.5 cm. long, while the fundus was 3.5. The fundus was normal, but the cervix was greatly thickened owing to the transformation of the muscular tissue into a spongy mass infiltrated with mucoid material, directly continuous with a large amount of mucus in the cavity of the cervix. The specimen was of the nature of a channelled mucous polypus, but invaded the whole of the cervical wall.—E. H. L. OLIPHANT.

Intra-Abdominal Use of Oxygen.—Dr. Collier, of Sonyea, N.Y. (in *Surgery, Gynecology, and Obstetrics*, October, 1915), describes the technique of this method of improving the patient's condition after abdominal operations; he claims that patients suffer less from shock and vomiting, and that the effects of the anæsthetic pass off much more quickly. The oxygen passes from the receiver, through the ordinary wash bottles and through a coil of tubing lying in a basin of hot water, to a glass nozzle suitably bent to pass into the abdomen through the wound. Before the closure of the peritoneum is completed the glass tube is introduced and is sewed tightly into the wound; the gas is then passed slowly into the abdomen, while the completion of the stitching is going on. After the complete closure of the wound the gas is administered till there is a very considerable distension of the abdomen; when the tube is gently removed the small opening quickly closes, and does not permit of the escape of the gas. The gas is quickly absorbed.—E. H. L. O.

Nitrous Oxide in Labour.—Dr. Heany, of Chicago (*Surgery, Gynecology, and Obstetrics*, September, 1915), describes the use of nitrous oxide in

procuring a painless childbirth. So long ago as 1880 the method was used by Klikowitch in St. Petersburg, but found no followers. For the past ten years Clarence Webster has been using nitrous oxide for operative midwifery as well as for a light degree of anaesthesia in the second stage of normal labour. With a suitable apparatus it is easy to discover the patient's susceptibility, and usually at the beginning of a pain three or four quick inhalations are sufficient to abolish the sensation of pain without making the woman unconscious. The admixture of oxygen—as a rule four to one of nitrous oxide—permits of anaesthesia without lividity, and obviates the headache from which women suffer who have had the gas pure, but as the patients vary so must the proportions of the mixture. The apparatus employed covers the nose only; the patient is directed to look up, and if the eyelids droop or if the lips become cyanosed the woman is directed to breathe through her mouth or the gas is cut off. The analgesia stage may be kept up for hours, and can at any time be deepened to complete surgical anaesthesia, which, again, can be stopped by giving inhalations of pure oxygen. Dr. Heany is of opinion that the method is safe and free from the valid objections to other means of securing painless labour. Suitable forms of apparatus for use in private practice are on the market.—E. H. L. O.

The "Dublin Method" of Conducting the Third Stage of Labour.—Dr. Kirkpatrick (*Dublin Journ. Med. Science*, September, 1915), read a historical note on the third stage of labour before the Royal Academy of Medicine in Ireland. He pointed out that the "Dublin Method" was not mentioned by Fielding Ould in his book published in 1742, nor in that of his pupil, Foster, in 1781. In 1768, however, John Harvie published in London a short pamphlet, in which he gave a clear and exact description of the method; in any case the Dublin school deserved every credit for so early recognising its value, and for so consistently teaching it.

In the discussion which followed it was generally agreed that Dr. Kirkpatrick had not proven his point, for, as Dr. Tweedy pointed out, Ould was only twenty-one when his book was published, and tradition had always ascribed the origin of the method to him, and it was after all, as Sir W. Smyly pointed out, an adaptation of a method practised by savages. Sir William had tried different methods for the management of the third stage, and had come back to the Dublin method as the best.—E. H. L. O.

Pituitrin in Labour, with Special Reference to its Action on European Women in the Tropics.—Dr. R. Johnson (in *Dublin Journ. Med. Science*, October, 1915) relates his experiences with this drug after giving a historical review of what is known of the pituitary body and its functions, and of the actions of its extract. In sixteen cases he used Parke, Davis & Co.'s *pituitrin*, and in no less than nine the child was born more or less cyanosed and rigid. Since his return from the tropics Dr. Johnson has twice used the extract of another maker; in both of these cases the child was born with the scrotum much cyanosed and with the swollen glans penis projected through the prepuce; one child was dead, and the other very feeble though weighing 8 lb. Among his conclusions he did not find the power of pituitrin in producing peristalsis and diuresis apply to Europeans in the tropics, but found it of much use in causing the detachment of the placenta.—E. H. L. O.

DISEASES OF THE EYE.

Glass Workers' Cataract. By William Robinson, Sunderland (*The Ophthalmoscope*, November, 1915).—In this important paper, read before the Oxford Ophthalmological Congress last summer, Robinson gives a complete description of this disease and of the methods adopted for its prevention. The author's attention was first drawn to the subject by the frequency with which bottlemakers came to the infirmary with cataract. Robinson's first papers were published in the *British Medical Journal* of 1903 and of 1907, when he discovered that in the majority of patients the opacity began in a characteristic way in the cortex of the lens at its posterior pole. Continental observers had also drawn attention to the frequency of cataract in glass workers, but they had not noted the peculiar features of its earlier stages. Dr. T. M. Legge, H.M. Medical Inspector of Factories, brought the matter before the Home Office, with the result that a Departmental Committee on Compensation for Industrial Diseases reported in 1908 that further investigations led "to the clear conclusion that cataract is many times more prevalent among men who work with molten glass than it is among the rest of the population." They recommended that "cataract in glass workers" should be added to the schedule of industrial diseases for which compensation may be claimed, but "that the compensation should be made payable only in cases where an operation is undergone, and for a period not exceeding six months." This recommendation was reached after a ballot had been taken among the glass workers, which showed that the workmen were divided as to the advantage of scheduling the disease, as they were afraid of a medical examination revealing the cataract in the early stages, when they might lose their work with few chances of obtaining fresh employment, in spite of the fact that they might remain thoroughly efficient for many years longer.

The Home Office then referred the exact etiology of "cataract in glass workers" to the Royal Society, a committee of which was appointed in 1908 and is still investigating the subject. Several researches have already been undertaken, and the results published by Sir William Crookes, Hartridge and Hill, Parsons, &c.

The nature of the work of glass workers.—The disease is most prevalent among the workmen in heavy glass factories on account of the method by which the heavy bottles are made. The mixed materials are thrown into a large furnace by the "founder," the contents are kept at a white heat by the burning of currents of coal gas and air directed on to the surface of the metal. The tank may contain as much as 350 tons of metal, and its surface measure 80 square yards. The "founder" uses a long rake, but he has occasionally to look into the intense light and heat (about 2,500 F.). He is provided with a piece of framed dark blue glass for looking through; but this he rarely uses, and consequently some of these men get cataract. At the opposite end of the furnace the bottle makers work in squads of five men each. The "gatherer" is usually an apprentice. He dips an iron pipe into the molten metal and takes up just sufficient glass to make a bottle. He is young and his eyes do not usually suffer, but his cheek is often blistered by the heat. With his back to the furnace he rolls the glass on a stone, roughly forming the neck and shoulder of the bottle,

and then hands the pipe to the "bottle-blower," who shapes the body of the bottle on another stone and then places it in a mould and blows down the pipe to form a bottle. The bottle, still on the iron pipe, is handed to the "bottle-finisher," who takes it off the pipe and looks into the molten glass and takes just sufficient metal to form the rim on the neck of the bottle. He then turns his back to the furnace and finishes the bottle. He usually finishes 120 doz. bottles per day, and, as he looks into the furnace for three seconds each time, he is exposed to the glare of the furnace for at least 66 minutes per day or $5\frac{1}{4}$ hours per week. If the "gatherer" is not promoted to be a "bottle-blower" he may develop cataract, but the "finisher" is the man whose lenses most often become opaque. The "finishers" are usually men between 35 and 40 years of age.

In flint bottle works and pressed glass works the furnace is kept at a lower heat, and the glass is obtained from small openings. The workers are therefore much less prone to cataract.

Statistics.—From the writer's tables it appears that he has seen, in the infirmary, 3 cases of cataract in "gatherers" and 37 in "finishers." Further tables are given showing the ages at which the cataract began and the ages at which the men are disabled, &c. In the workmen's society, among 114 superannuated members, 37, or 32.4 per cent, had cataract. The majority of the men had been "finishers." Dr. Legge examined 533 persons exposed to furnace glare in glass works, and for comparison 278 persons not so exposed. Between the ages of 30 and 40 opacities in the lens were about five times as frequent as in those engaged in other work.

The form of the cataract.—The opacity first appears at the posterior pole of the lens immediately under the posterior capsule, and is often irregularly disc-shaped. By oblique illumination it is brass-coloured. By direct examination with a +10D lens the opacity often presents an irregular network appearance within an irregular circle, situated entirely in the pupillary area.

As the cataract progresses the cloudiness gradually spreads to the rest of the cortex, and when it is ripe the lens has a pearly hue. A posterior cortical must not be confounded with a posterior polar cataract.

With regard to the question whether the disease is a primary or secondary cataract, Robinson points out that the opacity spreads from the centre to the periphery of the lens, that apart from some disturbance of the retinal pigment he has not found any other evidence of disease in the eye, and that after removal of the cataract the sight is usually good. For these reasons he concludes that this is a primary cataract.

Etiology.—The disease is almost entirely confined to the "bottle-finishers," the "gatherers," and the "blowers" and "founders."

From the researches as to transmission and absorption of *heat rays* H. Hart-ridge and Hill found that the iris obstructed all the heat radiation which fell upon it, that a great proportion of the longer waves are cut off by the cornea, and that the most penetrating rays are those just beyond the red. Twelve per cent of these are absorbed by the lens, while the remainder reach the retina.

E. K. Martin found that the short *ultra-violet* rays are completely absorbed by the cornea, while those immediately beyond the violet are absorbed by the lens. All rays which are absorbed give rise to heat.

Sir William Crookes has confirmed the observation of the late Professor Burch that no α -rays are emitted from intensely hot melted glass. He also

found that few ultra-violet rays are given off from the bottlemaker's tank. The photophthalmias caused by these rays are set up by intense glare from snow, the surface of the sea, powerful electric lights, Finsen lights, and mercury vapour lamps, and are characterised by intense photophobia, lacrimation, reflex bletherospasm, ciliary neuralgia, and in severe cases by corneitis and iritis. Such conditions are never seen in bottle makers. The *luminous rays* pass through the lens without absorption. No dazzling, no blinding, and no retinal scotomata occur in bottle makers such as are seen in eclipse blindness and after exposure to extremely brilliant luminous rays. Conversely, cataract has not been known to occur after exposure to these bright lights. The short exposure of three seconds while the "bottle-finisher" looks into the tank, followed by twenty-one seconds while he looks away, may account for the absence of the usual effects of glare in the eyes.

That the heat-rays (infra-red) are the cause of cataract is evident from the following facts:—

With a temperature of 2,000° F. to 2,500° F. they must be very strong. Sir William Crookes found them to be very intense. For a century it has been known that cataract is common in workmen whose eyes are exposed to great heat.

H. Hartridge and Hill have shown that the iris cuts off all the heat rays that fall upon it, and, the pupil being contracted by the bright light, the periphery of the lens is sheltered and thus escapes damage for a longer time than the pupillary area.

The intense heat rays are refracted by the cornea and lens, and become more concentrated in the contracted pupil near the posterior pole, where, in addition, some are reflected from the concave posterior surface of the lens. The first change may be a slight shrinkage from drying, or it may be an actual coagulation of the lens proteins. Parsons suggested that the cataract was secondary to changes in the ciliary body, but of this there is no evidence.

Since 1909 Sir William Crookes has been experimenting with different glass mixtures. No. 217 is a pale blue glass with a tint of green, and colour matches are little affected by it. It cuts off 90 per cent of the heat radiation, all ultra-violet rays, and transmits 40 per cent of light. He has not yet succeeded in making an ideal glass which will intercept all the heat and actinic rays, and allow the luminous rays to pass unhindered. If his glass is too expensive, the men may use ordinary dark-blue or dark-smoked goggles. In some continental works a square of thick glass hangs in front of the hole through which the "bottle maker" looks into the furnace.

The American bottle moulding machine does not allow the eyes to be exposed to the intense heat and light of the tanks. Two of these machines have already been set up in this country.

A bibliography of recent work is appended to this interesting paper.

—W. B. INGLIS POLLOCK.

BACTERIOLOGY.

Micrococcus Tetrigenus Meningitis. By F. Ramond and A. Resibois (*Le Progrès Medical*, September, 1915, p. 463).—It is just nineteen years since the pathogenic action of micrococcus tetrigenus was first noted, for prior to that time it had been regarded as a harmless saprophyte. Its disease producing powers have now been confirmed by many observers, and it would even appear that the war itself is likely to add to the list of its pathogenic possibilities. Thus, Langlet and Sacquepee have recorded a small epidemic of continued fever, with a generally favourable prognosis, due to the micrococcus tetrigenus, either alone or in association with another little known diplococcus. The disease resembled a benign typhoid fever, but with special pulmonary, digestive, and vaso-motor complications.

During the same period the authors have had under observation two cases of cerebro-spinal meningitis due to micrococcus tetrigenus. In both the disease ran a benign course, and both presented unusual complications, similar to those described by Langlet and Sacquepee.

CASE 1.—A soldier, æt. 25, was admitted to hospital after 6 days of fever, with all the classical symptoms of cerebro-spinal meningitis—stiffness of the neck, opisthotonos, Kernig's sign, intense headache, and vomiting. Constipation followed several days of diarrhœa, and on auscultation sibilant and crepitant râles were heard in the chest. The extremities were cyanosed. The temperature was 40° C. ; pulse, 90.

Lumbar puncture was performed, and 25 c.c. of turbid fluid removed, followed by the immediate injection of 20 c.c. of anti-meningococcic serum. Bacteriological examination of the fluid revealed the presence of the micrococcus tetrigenus.

Next day (the 13th) the meningeal symptoms had rather abated, but the urine was scant and muddy. A further 25 c.c. of cerebro-spinal fluid was removed, and 1 c.c. of colloidal gold injected. On the 15th the improvement had continued, and the cerebro-spinal fluid was more opalescent. Labial herpes had appeared. After this the patient made a rapid recovery. The cerebro-spinal fluid was clear on 11th March, Kernig's sign disappeared on 28th March, and the patient was discharged a few days later. Unfortunately the spit was not examined bacteriologically.

CASE 2.—A soldier, æt. 28, was admitted to hospital on 28th March, after five days' illness, complaining of headache, vomiting, and diarrhœa. The bowels moved four or five times a day, and the motion contained mucus but no blood. Temperature, 37·5° C. ; pulse, 100. Stiffness of the neck and Kernig's sign were present, but the mind was clear. Lumbar puncture gave issue to 30 c.c. of turbid fluid, from which the micrococcus tetrigenus was obtained on cultivation. On 30th March another puncture was done, and after the removal of 20 c.c. of less turbid fluid, 1 c.c. of colloidal gold was injected. There was rapid improvement thereafter, and on 1st April the headache and stiffness of the neck had gone. On this day labial herpes appeared, but lumbar puncture yielded only clear fluid. The patient was discharged, cured, on 18th April.

Of these cases, the first presented all the symptoms of the infection described

by Langlet, viz., well-marked fever, diarrhoea at the commencement, and respiratory and vasomotor disturbances. In the second case, on the contrary, only the intestinal phenomena made their appearance.—MATTHEW J. STEWART.

Tetragenus Septicæmia of Typhoid type, with Rose Spots, Cured by Colloidal Silver. By MM. Loeper and Bergeron (*Le Progrès Medical*, September, 1915, p. 464).—While vaccination has notably reduced the incidence of typhoid fever, and the recovery of Eberth's bacillus from the blood occurs with less and less frequency, cases are met with from time to time in which a typhoid-like disease is found to be due to infection by such different organisms as bacillus proteus, the enterococcus, and the micrococcus tetragenus. The authors have recently had under observation a good example of tetragenus septicæmia of typhoid type.

B., æt. 26, was admitted to a military hospital on 23rd May, 1915, with pulmonary and intestinal symptoms, accompanied by considerable elevation of temperature. The commencement of the illness seven days before had been marked by abundant diarrhoea, with vague colic and marked general weakness. There had been no headache.

On admission the abdomen was somewhat distended, and there was pain and gurgling in the caecal region. The spleen was enlarged, but there were no rose spots. A curious fact was that the patient coughed continually, and there was a copious purulent expectoration. Examination of the chest revealed a broncho-pneumonic lesion at the right base. Pulse was 104, soft and regular. Temperature, 40·5° C.

After some days the patient entered on a second period of hyperthermia, more serious than the first, with nocturnal agitation, marked asthenia, and an actual typhoid state. At the same time absolutely typical rose spots made their appearance on the abdomen.

Agglutination reactions against bacillus typhosus, and paratyphosus A and B were negative. Blood cultures on 28th May and on 3rd June gave a pure growth of micrococcus tetragenus citreus (a variety of micrococcus tetragenus which is non-pathogenic for the mouse). On 3rd June the patient was given an intravenous injection of 5 c.c. of colloidal silver. This was followed by a definite drop in temperature, and by obvious improvement in the general and intestinal symptoms. The pulmonary phenomena, on the other hand, were practically unchanged. During the 6th, 7th, and 8th of June there was a recrudescence of the pyrexia, and a few more rose spots appeared on the abdomen. On 8th June a second injection of electrargol was given, whereupon the temperature fell to and remained at normal. All the symptoms regressed from this date. The spleen diminished in size, the broncho-pneumonic focus resolved, and the intestines began to functionate normally. By 18th June the patient was regarded as cured.

That the micrococcus tetragenus was the actual pathogenic agent in this case is shown not only by the fact of its recovery on two occasions in pure culture from the blood, but also by the fact that the patient's serum gave a positive complement deviation test with this organism. The striking result of the treatment by colloidal silver in the form of electrargol is insisted on, and its employment in similar cases is strongly recommended.—MATTHEW J. STEWART.

X-RAYS, &c.

Gastroptosis. By Arthur F. Hertz, M.A., M.D., F.R.C.P. (*Archives of Radiology and Electrotherapy*, October, 1915).—Orthostatic gastroptosis is the condition present when the *lesser* curvature is *below* the level of the umbilicus in the erect posture, while in the horizontal position the *greater* curvature is *above* the umbilicus. When in this last position the greater curvature remains below the umbilical level, complete gastroptosis is said to be present. Gastroptosis does not necessarily lead to kinking of the pylorus, as the first part of the duodenum and pylorus are freely movable. The second part of the duodenum is fixed, and kinking may be produced there. Ptosis of the duodenum may be said to be present in all cases where the upper extremity of the duodenum is not at least 1 inch above the umbilicus. If the stomach and the duodenum are both ptosed the passage of food is usually normal in rate; if the stomach only is down, kinking is likely to take place; the food will enter the first part of the duodenum freely, but it will be delayed at the second part. If the patient lies on his back the stomach falls to the left side and the kink is maintained, but if he lies on his right side food passes through. Indigestion symptoms are not likely to be due to gastroptosis if there is no delay in the emptying time of the stomach. *Atony* is present if the highest level of the opaque meal is not within 2 inches of the highest point of the diaphragm.

Orthostatic hour-glass stomach.—When ptosis and atony exist at the same time this condition may be produced. The walls of the stomach do not contract on the food which collects at the lower extremity, and this drags deeper as more food enters. The fundus being fixed, the stomach elongates until the walls meet, separating the fundus from the lower portion. More food being now taken, it will remain in the upper part, giving the stomach an hour-glass appearance, but this will immediately disappear on the patient assuming the horizontal posture.

If by voluntary contraction of the abdominal muscles, while the patient is in the erect posture, the stomach can be brought into its normal position, abdominal exercises, massage, and the temporary use of an abdominal support will usually result in cure; but it is of great importance to determine by *x-ray* examination that the abdominal support really is holding the stomach in position; they very often are inefficient.—J. R. RIDDELL.

The Inhibitive Effect of X-rays upon Malignant Growths.

By Christopher Kempster, M.R.C.S., F.R.C.P. (*Archives of Radiology and Electrotherapy*, June, 1915).—Of the various classes of disease which are treated with *x-rays* most interest centres around malignant growths. They can in the majority of cases be robbed of many of their terrible and distressing symptoms. Ulceration healed, tumour formation made to disappear, and sometimes the disease can be cured. It is impossible to tell which cases will do well and which will not. Epithelioma, or squamous-celled carcinoma, is a new growth which takes its origin from any part of the body where squamous or stratified epithelium exists. Histologically the growth is found to consist of columns of cells which are down-growths from the surface epithelium from which the tumour springs. These cylinders of cells are not enclosed in a membrane, but have a tendency to communicate with each other in the deeper tissues, forming a network. They

are connected together by a fibrous stroma which is infiltrated with adventitious cells. "Cell nests" also are present; in the centre are one, two, or more spherical cells, around which the squamous epithelium is arranged in a concentric manner. Rapidity of growth and malignancy differ according to the part affected. Epithelioma of the lip grows slowly, and if removed freely may never recur. Epithelioma of the tongue grows very rapidly and is very prone to recurrence; it early infects the lymphatic glands.

The chief clinical differences between epithelioma and other forms of carcinoma are—that it is not so liable to dissemination, and that it is not so likely to recur if freely removed.

The x-ray has a definite selective action upon morbid cells; the more nearly the cell approaches the embryonic condition the more profoundly is it affected; small doses stimulate, medium retard growth; large doses destroy the cells altogether. It is generally thought when an epithelioma is successfully treated that the dose has been so estimated as to be sufficient to destroy the cells of the new growth, but not sufficient to destroy normal tissue cells. The cells of the neoplasm thus killed are absorbed by an invasion of small round cells which ultimately develops into keratotic tissue. If this is really what does occur we should find in a section of an epithelioma that has been rayed evidence of destruction of cells, greater at the surface than deeper in, and that younger cells had suffered more profoundly than older cells, and in the "cell-nests" the younger central cells should be destroyed before those at the edge of the nest.

Examination of sections from the case forming the basis of this paper do not satisfy the conditions above. The superficial cells are not more affected than the deeper ones, nor are the younger cells than the older. The central ones in the cell-nests are not more affected than the peripheral. There is very little evidence of cell destruction, but there is evidence of the disappearance of malignant cells. The result is achieved not by *cell destruction* but by *inhibition of proliferation*, as is seen occurring in the testicles of animals after raying.

"The quantity of irradiation required to accomplish this is an amount which is not sufficient actually to kill the cells themselves, but is capable of destroying their power of reproduction."—J. R. RIDDELL.

Books, Pamphlets, &c., Received.

- Injuries of the Eyes, Nose, Throat, and Ears, by Andrew Maitland Ramsay, M.D.Glasg., J. Dundas Grant, M.D.Eng., H. Lawson Whale, M.D.Camb., and Charles Ernest West, F.R.C.S.Eng. Oxford War Primers. London: Henry Frowde and Hodder & Stoughton. 1915. (2s. 6d. net.)
- Medical Lectures and Aphorisms, by Samuel Gee, M.D. With Recollections by J. Wickham Legg. London: Henry Frowde and Hodder & Stoughton. 1915. (6s. net.)
- Bodily Changes in Pain, Hunger, Fear, and Rage: An Account of Recent Researches into the Function of Emotional Excitement, by Walter B. Cannon. London: D. Appleton & Company. 1915. (7s. 6d. net.)
- Rhizopod Protozoa: The Cause of Cancer and other Diseases, being Part IV of "Protozoa and Disease," by J. Jackson Clarke, M.B.Lond., F.R.C.S. London: Baillière, Tindall & Cox. 1915. (7s. 6d. net.)

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDED 18TH DECEMBER, 1915.

	WEEK ENDING			
	Nov. 27.	Dec. 4.	Dec. 11.	Dec. 18.
Mean temperature, . . .	33·7°	36·2°	38·1°	38·3°
Mean range of temperature between highest and lowest,	13·1°	7·2°	7·2°	7·0°
Number of days on which rain fell,	2	2	6	4
Amount of rainfall, . . . ins.	0·22	0·37	2·37	0·60
Deaths (corrected), . . .	525	463	401	394
Death-rates,	25·4	22·4	19·4	19·1
Zymotic death-rates, . . .	1·0	1·0	1·5	0·7
Pulmonary death-rates, . .	11·3	9·6	6·5	5·6
DEATHS—				
Under 1 year,	74	58	64	53
60 years and upwards, . .	195	180	126	141
DEATHS FROM—				
Small-pox, . . . . .	...	...	...	...
Measles,	4	3	8	5
Scarlet fever,	6	7	13	6
Diphtheria,	7	8	7	1
Whooping-cough,	3	1	1	3
Enteric fever,	1	2	...	...
Cerebro-spinal fever, . . .	4	1	1	1
Diarrhoea (under 2 years of age),	8	7	6	3
Bronchitis, pneumonia, and pleurisy,	213	164	112	93
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Cerebro-spinal meningitis, .	2	4	1	3
Diphtheria and membranous croup,	29	28	26	23
Erysipelas,	24	33	31	39
Scarlet fever,	142	120	134	130
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	4	6	3	2
Phthisis,	45	34	45	52
Puerperal fever,	2	3	5	6
Measles,*	44	98	103	76

* Measles not notifiable.

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ORIGINAL ARTICLES.

DELAY IN BREECH PRESENTATIONS FROM
EXTENSION OF THE LEGS.

By ROBERT JARDINE, M.D.

IN breech presentations the risks to the child are much greater than when the vertex presents, and this is markedly so when there is delay after the membranes have ruptured, especially in first labours. The delay may be due to impaction caused by the large size of the breech, or by the small size of the mother's pelvis, that is, by a disproportion between the size of the passages and the passenger: but there is another cause, viz., extension of the child's legs, and it is with this class of cases I intend to deal. This condition is usually spoken of as one of impaction, but strictly speaking it is not impaction in the ordinary sense of the term.

In an ordinary breech presentation the flexed attitude of the child is maintained, just as in a vertex presentation, the only difference being that the reverse end of the child is leading. The head is flexed on the bent body, the thighs are flexed on the abdomen, the legs are flexed on the thighs, and the feet are flexed upon the legs. The child is in a squatting attitude

at the brim, with the buttocks a little lower than the heels. On making a vaginal examination the buttocks and genital organs are first felt, but the heels can easily be reached by passing the fingers a short distance up in front of the buttocks. When the legs are extended, the feet lie well up on the chest, and the body is not flexed. One would imagine that this would make it easier for the child to pass, as the feet and legs are well out of the way, but this is not so.

If we study the mechanism of labour in an ordinary breech presentation, we find that the anterior hip is the leading part of the child, and it follows the rule for internal rotation when it strikes the pelvic floor; that is, it passes forwards under the pubic arch where it becomes pivoted. In dorso-anterior positions the sacrum passes backwards, and in dorso-posterior positions it comes forwards, but it does not come under the pubic arch. The sacrum is not the leading part of the child, so the usual naming of the positions as right and left sacro-anterior and posterior is wrong, and should be given up. Where the anterior hip has rotated under the symphysis pubis, the posterior hip is forced over the perineum by lateral flexion of the child's body, or, in other words, the body is bent round under the symphysis pubis and the breech is born. The point I wish to lay stress upon is that lateral flexion of the body of the child occurs at the outlet. It corresponds with the movement of extension in an anterior vertex position.

When the legs of the child are extended, descent is usually arrested before the pelvic floor is reached, and in many cases before the breech has entered the brim. In other words, the breech has become impacted, as it is called. Now, why is this? The explanation which is given is that lateral flexion of the body is prevented by the extended legs acting as splints. I believe this explanation is wrong.

In the first place, can the extended legs act as splints? I maintain they cannot. To fix, say, a broken bone, a splint must be rigid, and it must be fixed at both ends. If you examine the legs of a new-born child you will find they can easily be bent laterally; so they are not rigid, and they certainly are not fixed at both ends, because the feet lie free on the chest of the child. It seems to me that a splint, which is not rigid, and is only fixed at one end, is not a splint at all.

In the second place, the movement of lateral flexion of the body occurs after the anterior hip has rotated forwards under the symphysis pubis, or, in other words, at the outlet. Now, in these cases, the descent is arrested before the breech has reached the pelvic floor, as I have already indicated, and, if lateral flexion did occur at this juncture, it would not assist matters, but tend to make them worse. Bending of the body is only necessary at the lower part of the curved canal—that is, at the outlet, and not at the inlet, of the pelvis.

Now, if lateral flexion of the body is neither prevented by the extended legs, nor is it necessary at this juncture, what is the reason of the arrest in descent? My explanation is that the breech is prevented from descending by the action of the retraction ring. In these cases, you will invariably find that the membranes have ruptured very early in the labour, sometimes before the labour has commenced. The liquor amnii quickly drains away, and the uterus becomes moulded round the child, and before the os is fully dilated the retraction ring has firmly gripped the child's body, either behind the knees or just below the feet. The ring forms a distinct ledge round the interior of the uterus, and with each contraction it contracts and prevents descent. The child is hung up, as it were, by the ring, and unless relaxation occurs, descent cannot occur. If the membranes had remained intact until the cervix was fully dilated, the probability is that the ring would not have formed, and the breech would have come down as usual, although the legs were extended. I advisedly say, the probability is that the ring would not have formed, if the membranes had remained intact, for the reason that I have known the ring to form in a vertex presentation with unruptured membranes, and the same thing might occur in a breech presentation, but I have not yet met with a case.

There has been considerable discussion as to the exact position in which the retraction ring forms, but with that we are not at present concerned. That it does form in these cases, and that it is the cause of the delay, I have had ample proof in a considerable number of cases both in private and in hospital work, and have been able to demonstrate the fact to physicians who have called me in private, and to many of my house surgeons.

In delayed or obstructed labours, the retraction ring is apt to form when the liquor amnii has long been drained away. It then becomes a serious complication, but it is the result and not the cause of the delay, and it adds very much to the difficulty, but it is not the original cause of the delay. An impacted transverse case is a typical instance of this. This aspect of the action of the retraction ring has long been recognised, and you will find ample references in the ordinary text-books, but you will find very little reference to the action of the retraction ring as the primary cause of delay. I quite admit that these cases are few and far between, but when they do occur they are extremely difficult to deal with properly, especially if they are not recognised.

When the ring has formed, a sulcus can be seen running across the abdomen between the top of the pubes and the umbilicus. The higher this sulcus is the greater is the retraction. It can also be easily felt, but by an internal examination it can be recognised quite easily before it can be detected externally, if you pass the flattened-out hand beyond the presenting part, when a distinct ledge will be felt running round the inside of the uterine cavity. This examination must be done with care, as the lower uterine segment is so thin that there is risk of rupturing it. Some years ago, I saw a breech case with a man after he had failed to deliver, and he told me that he had tried to get hold of a leg, but on passing in his hand he had found a ledge which he thought was causing the obstruction, but he did not know what it was. I at once told him it was the retraction ring, and that the legs would be extended. I found this was so, and I delivered a live child in the way I am about to describe. In another case, the man had used all forms of traction he could apply, including a blunt hook, and had failed. I delivered the child alive, and found that the blunt hook had made a wound in the abdominal wall which required three stitches. The child did well. I mention this case to show how useless it is to make traction on the breech by means of forceps, fillets, or hooks. A blunt hook should never be used on a live child. If the child is dead, use any instrument which will enable you to deliver with the least risk to the mother; but if the child is alive, always remember that the first consideration is in the mother's interest,

but never forget that the unborn child's claims also require consideration, and try to do the best for both, the mother always being considered first.

Diagnosis of the retraction ring.—In many cases, a sulcus can be felt or seen running across the abdomen between the umbilicus and pubes, but it can be detected much earlier by passing the flattened-out hand beyond the presenting part. It will be felt as a very distinct ledge running round the interior of the uterus and gripping the child. In breech cases, the hand should be passed up over the front of the child, and the extended legs will be recognised. The patient should be deeply anæsthetised.

Prognosis.—For the mother the prognosis should be good, but the risk to the child is slightly greater than in an ordinary breech case.

Treatment.—If the os is not fully dilated when you diagnose the condition do not wait, as the longer the delay the greater will be the obstruction from the retraction ring. Have the patient deeply anæsthetised, finish the dilatation manually, and deliver the child. In delivering breech cases various methods of making traction are advised, as by means of forceps or by a fillet. In these cases, neither of these methods is of any use. The forceps will slip off the breech, and the fillet will probably break the femur. A blunt hook should never be used on a live child. The proper method of delivery is to bring down a leg. When the os is fully dilated, pass the flattened-out hand up along the front of the child and gently insinuate the fingers between the ring and the legs until you get a foot, which you swing inwards and bring down below the ring. You then get a better grip of the foot, and bring it down into the vagina and through the vulva. The manipulation must be done with care, as the lower uterine segment is very thin and there is risk of its rupture. One leg is all that need be brought down. Make traction upon it to bring the body down, but get an assistant firmly to compress the fundus, so as to keep the head well flexed and the arms down. If you

deliver the body by traction from below, the arms will probably be caught by the ring; and if they become extended you will have great difficulty in releasing them as they are so high up. If this happens, the child's life will probably be lost. The remainder of the delivery is accomplished in the usual way by firm supra-pubic pressure, in addition to gentle traction on the body. In all breech deliveries supra-pubic pressure should be used in preference to traction from below. The pressure from above keeps the head flexed, and prevents the arms from becoming extended.

In my experience, drugs have little or no effect in preventing the formation of the ring, or in causing it to relax when it has formed. Opium has no effect, and even the deepest surgical anæsthesia does not cause relaxation.

As a rule, the third stage of labour will not be interfered with: but in one case, where the ring had formed round the neck of the child, we had a typical hour-glass contraction of the uterus in the third stage of labour. That patient had had several doses of morphia during the second stage, yet the ring had formed to a very marked degree, and the deep anæsthesia during delivery did not relax it.

THE NEURASTHENIC ELEMENT IN DISEASE.

BY JAMES CRAIG, L.R.C.P. & S.E., L.R.F.P.S.G.

NEURASTHENIA as a disease we are all only too familiar with, but neurasthenia as a symptom in certain other morbid conditions is one which we are perhaps too apt to neglect, or not to appraise at its true value. The close connection between mind and matter is a theme which has interested the sages and seers of all times and countries. Its illimitable scope, and the breadth of view favoured by the subject, has given it a unique charm and a will-o'-the-wisp infatuation for certain minds. Idealism on the one hand and gross materialism on the other have too often been the outcome of all such studies. Anything like a *via media* has been thought to be impossible and unthinkable, and only these two alternatives were offered to poor students of the subject. But just as the advent of Hegel harmonised opposites, and subtly proved the presence of the negative in the positive, so a countryman of his has recently shown us the intimate connection between mind and body, and proved that a great many psychological diseases have a materialistic basis, and can only be treated in a materialistic way. It is quite true that one of our great authorities on mind diseases, Dr. Maudsley, laid it down long ago that "the brain secretes thought as the liver secretes bile." For the expression of a truism in physiological language he was anathematised and pilloried by a public which did not understand him, and denounced as a materialist of the most dangerous type. Fortunately he has lived to see some of his most cherished convictions received with reverent acclamation, and the treatment of lunacy put upon a sounder and more rational basis. No student of lunacy now fails to look for physical lesions as accounting for much of the mental aberration he sees developing before his eyes.

In the *post-mortem* room he minutely examines the organs of the poor victim of general paralysis, and rarely fails

to find some *fons et origo* of the mental wreck which was once a force to be reckoned with in the world of human beings. This physical and material basis for a disease condition situated at another area proves the close connection there must be between mind and matter, and how the manifestations of mind must have some bias given to them by alterations in structure and function in one or other part of the body. One phase—gastro-enteric insanity—is so well defined by Sir John Sibbald that we cannot do better than give it in his own words:—"The emotional condition is well known to be to an appreciable extent dependent on the state of the *primæ viæ*; and where the nervous system is predisposed to derangement, certain affections of the stomach and bowels seem sufficient to produce insanity, and to stamp it with a special melancholic character. In addition to the mere depression caused by anæmia, there is associated with such affections a peculiar anguish of mind, and tendency to self-accusation, which is often of the most depressing nature. Refusal of food is frequently a prominent symptom. The intellectual perversion is often slight, and seldom so prominent as in other acute insanities. Relief of the bodily symptoms is generally accompanied by a return to sanity. The affections which have been most frequently observed to produce this form of melancholia are irritation and catarrh of the mucous membrane, constipation, stricture, or other causes of distension of the viscera, and pressure upon the stomach or intestines by tumours in the epigastric region. Schroeder Van der Kolk describes the mental symptoms as being always due to affections of the colon, but disease of other portions of the canal—as the rectum and anus—seems also to produce them."

In another aspect we see that the growth of mental function is as gradual as that of bodily power; that in some it may be more rapid than in others, like that of the body; that it may be arrested in its development, or stunted and deformed; and that it may by imperfection of the organs, as blindness or deafness, be impeded or stopped. In all particulars it will be found subject to the laws which regulate the growth of the body generally. For the growth of healthy brain and mind all the conditions of physical health are necessary. *Mens sana in corpore sano* was the dictum of the ancients iterated and

reiterated by men all through the ages, and yet the literature of medicine does not reflect a firm set belief in this aphorism in the investigation of disease phenomena. The phenomena of mind and the phases of body are unfortunately too frequently studied as separate and distinct entities having a little cosmos of their own and a special atmosphere enveloping them. To study what is called psychological medicine in a special sense without recognising its *fons et origo* in general medicine is undoubtedly the cause of so much theorising of a fatuous kind, the only result of which is a kind of mental gymnastic, useful to the originator, but confusion worse confounded to the poor student of the subject. The modifying circumstances of almost all diseases upon the brain and mind of the patient ought to be more generally taken note of, and a better and more accurate diagnosis and prognosis, and more success in the treatment of them will assuredly result. To eliminate the mental factor altogether, even in our study and treatment of surgical diseases, is to cut off from the field of observation many useful details—foregrounds and backgrounds, as our artist friends would call them—which enable us to see more distinctly the salient points in our picture of disease forces. Some time ago a book appeared in which the introduction and part of the body of the book took a very sane and practical view of this question. In the second part and the conclusion the writer fell into the pitfalls of "Mind origination," "Premonitions," "Faith cures," "Telepathy or earth sympathy," &c. The writer's true and vigorous language at the start on the close connection between mind and body led one to expect some different conclusions, but, unfortunately, he fell into the too common literary "lumber" of a "special pleader." As a contribution to the study of this important subject, it is a work the first part of which will amply repay perusal, and its originality and unconventionalism shows at least the trend of modern medical thought.

Many years ago I had this subject rather summarily thrust upon me by being asked to see a lady, who had travelled much abroad, with a very typical attack of hysteria in its most characteristic manifestations. Her husband told me the condition before I went to see her, and his excuse for calling

me was that she never got better until she saw a medical man. She had the *globus hystericus*, had been laughing and crying alternately, and was in a semi-trance condition when I saw her. I applied mustard and cold water in a handkerchief to the nape of her neck, and waited. When she felt it she began to get gradually well, and in the course of about three-quarters of an hour I was able to leave the house. I remarked to her husband about her pallor, and he admitted it was certainly worse than usual, but that she never had much colour. I examined her thoroughly next day, and found no hæmic murmurs or any physical evidence of disease. When I examined her urine it contained a small quantity of albumen; on microscopic examination it contained granular hyaline casts, epithelial *débris*, and some amorphous deposits.

I watched that case for five years, and the hysterical attacks went on correspondingly with the exacerbation or remission of the diseased kidney condition. The woman ultimately died from cerebral hæmorrhage due to the kidney disease. The neurasthenic symptoms went on till within a few weeks of her death, and were the most clamant and emphatic of all the disease phenomena which that patient presented for our study and diagnosis.

The next patient is also a lady, who called on me one day, and in the course of about an hour's interview gave me a series of the most unclassifiable symptoms I had ever heard. I had no hesitation in putting her down as a poor neurasthenic, but told her I would prescribe nothing until I saw her husband and had an opportunity of examining her in bed. The husband called and told me confidentially that she was "just hysterical," and he did not want me to make any fuss about it by visiting her. I bowed him out, and thought no more about it for a week or two until he turned up one morning at 2 A.M. and asked me to see her. He told me it was just another of these "hysterical attacks," but that he would get no peace until I came to see her. When I looked at the patient in bed she appeared ghastly and very ill, and was sitting up as she was afraid she was going to choke. Her skin was so sensitive that nearly every part of it you touched seemed to give her pain. She was appealing and craving for sympathy in almost every sentence. Her pulse I noticed was small and irregular, but

the palpitation of the heart was so acute that accurate observations on the conditions of the valves were impossible. I sat down for some time talking to the friends, but really watching the patient grow gradually calmer and more composed. The pulse fell to 94—still irregular—and I thought I detected a presystolic murmur. In about an hour and a half from the time I first entered the house she took a typical attack of angina pectoris with all its classic symptoms. It was two hours after this before I was able to leave the house, and before leaving I made myself perfectly sure that she had a presystolic murmur. I enjoined absolute rest in bed, and left some nitro-glycerine tabloids in order to combat any further anginous attacks. On examining her urine next morning, I found it to contain a fairly large quantity of albumen. I then told the husband how serious this condition was, and that the hysterical symptoms were merely masking or veneering over more serious symptoms of grave organic disease, and suggested a consultation. The consultant examined the urine more minutely, but found nothing more than albumen in fair quantity, and we came to the conclusion that the heart was the source of the mischief. She lived for two years after that, with frequent attacks of hysteria and only one anginous attack, but ultimately was laid up for weeks with the usual phenomena of cardiac dropsy, and died suddenly one morning from what were apparently repeated anginous attacks.

Here was a case which was slightly different from the preceding one. The chronic kidney condition in the first case was probably causing an accumulation of morbid material in the blood, and this was giving rise to brain poisoning. In the second case, however, although we may have had a little of that same brain poisoning from morbid material, the greater brain disturber would be the irregular and insufficient supply of blood to that organ. In these two cases, nevertheless, we see that although the causes were different and varied, the mental phenomena produced were much the same. The organism evidently when irritated or insufficiently nourished must go wrong in one certain direction, hence neurasthenia is the result.

I shall now take two cases of males in which the hysterical symptoms were the most prominent, and were evidently the

result of a more deep-seated and grave condition. Some one has told us that hysterical conditions are not very common, indeed very rare in the male sex, but my experience is that you will find it almost as frequently in the male as in the female. This lad, A. B. I shall call him, was first brought under my notice at the age of eighteen years when I was attending his mother one night. She introduced the subject by saying she had a boy, Johnnie, who was very nervous and quite "daft-like" in his actions at times, and that afternoon he had evidently had one of his bad turns and was in bed in one of the rooms. I went in and saw the lad and found him very nervous and excited, and very anxious to show me the exact locale of all the pains and aches. He certainly had a pale, pasty facial expression, but the mucous membranes were quite ruddy and healthy-looking. The only physical defect I could notice was a protuberant abdomen, which was very tympanitic and measured 45 inches on a full inspiration. He complained of occasionally feeling dull and sharp colicky pains in the abdominal region, but his mother assured me he had one of the best digestions in the house, and certainly the most voracious appetite. His urine and fæces were evidently normal. I gave him some calomel and pulv. scammon. to empty his bowels thoroughly, and then examined his abdomen carefully next day. I found distinct enlargement of the abdominal glands here and there, and evidences of greater distension of the gut at some parts than others, the bowel wave being at times distinctly visible in its worm-like movements. In a short time I was able to make up my mind that this lad suffered from *tabes mesenterica*, and advised his parents accordingly. He was treated in a general hospital for three or four months, where he had also his hysterical symptoms at times. He lived till he was 21 with his neurasthenic symptoms and his *tabes* until he gradually died from acute peritonitis. For years before I saw him this boy had been nervous and hysterical, and his friends had convinced themselves that this was so to such an extent that they paid no attention whatever to his complaints, and even upbraided him for his foolishness.

Often in the later stages of heart disease we see poor people scolded and scoffed at for their nervousness—for their mental

irritability—conditions, indeed, which the disease brings about and over which they have no control. Of all the mortal diseases one sees in which these hysterical phenomena are the most prominent symptoms, I think valvular heart disease is the most common, and in this disease it is one of the most early symptoms. You will sometimes get the hysterical symptoms when the heart's action is so rapid as to preclude any proper and accurate diagnosis of the valvular condition. This condition is so important as a symptom that I always examine the heart first before going any further. It is almost as prominent a symptom of heart disease as that peculiar chronic dyspepsia which frequently precedes phthisis. No one ever meets this disease without examining the apices of the lungs very carefully, and usually finding there a cause for this dyspepsia.

The second case of hysteria in the male sex, masking a malignant tumour, is that of a man, aged 50 years, of a strong, well-knit, wiry frame, and an athlete of no small fame. His wife told me his earliest symptom of any trouble was sleeplessness. In the daytime he could take no interest in his work, and occasionally came home from sheer fear of not being able to do it properly. In tramcars or vehicles he could not sit still, but ceaselessly moved either his legs or his arms, and chanted the most lugubrious lamentations to any friend who accompanied him on a journey. He then began to lose flesh and appetite at the same time, and was sent by a consultant to the seaside "to brighten and cheer up his spirits a bit." It was on his return from the seaside that he fell into my hands, as I had met him in connection with another matter some years before that. As he sat before you, you saw a man on whose face was the imprint of suffering, and whose nervous twitchings and movements indicated a very unstable mental equilibrium. His thoughts, his language, his gestures, all embodied the concrete idea of the poor neurasthenic. The symptom he complained to me most of was sleeplessness, and a very tangible feeling that he was a different man now to what he was two or three years ago, but could give no reason as to the cause of such a thing. He was deeply conscious of his nervousness, of his anxiety and dread about the fearful and the terrible, but he said he had tried hard to rid himself

of the evil by an effort of will; but all to no purpose. I examined his urine, but found nothing definite by the crude methods I had at hand; but even later on, when I examined it more minutely, I could find nothing to help me to a diagnosis of the case.

I examined him in bed on the day after my first interview, and found a smooth, movable, somewhat round swelling in the epigastrium, slightly to the left of the middle line. It was only painful when deeply pressed backwards. I telephoned to a well-known surgeon about him, and next day we examined him in bed under chloroform, but were unable to say what it was, or what were its attachments. Later on, a median incision was made, and we discovered it to be a malignant tumour in the stomach wall, which it was quite impossible to remove. The wound was closed, and healed nicely.

The man lived for about seven months after this, and during nearly the whole of that time his symptoms were more indicative of hysteria than malignant disease. He never got rest or sleep without a combination of bromide, chloral, and morphia. He had no vomiting or sickness, no diarrhœa—nothing at all to indicate that serious and grave structural changes had taken place in the gastric wall. In the early stages of this patient's illness, I have no doubt that all the symptoms pointed to a neurasthenic condition, and that there would be no abdominal symptoms at all pointing to a serious lesion there—indeed, it is quite possible that examining him under chloroform nothing but negative results would have been obtained.

As supplementary to the foregoing cases I might mention two others—also in males—in which the symptoms were somewhat similar.

Some time ago I was asked to see a man, aged 52 years, suffering from insomnia and general restlessness. In early life he had been addicted to alcohol in excessive quantities, and his friends thought this had something to do with his present illness. He had none of the characteristic signs or symptoms of cirrhosis of the liver, and therefore I dismissed that theory. Although he had no digestive troubles pointing to the stomach, there had been a gradual tendency to increasing constipation. An examination *per rectum* indicated nothing, and the motions

seemed to be well formed. Often, however, there was considerable pain on evacuation of the bowels. An examination of the urine revealed nothing. On deep pressure over the pyloric region a firm and tense hardness was felt, over which there was considerable tenderness. There was no vomiting, retching, or acid eructations, or history of jaundice. As he lay in bed he seemed nervous, and had twitchings of the muscles of the face, arms, and legs, and his friends told me he sat up half the night smoking and musing over the fire. When he went out walking he wandered aimlessly about from place to place, and very few of his movements indicated any method or intellectual effort. The ultimate history of this patient was that he went slowly down from pyloric cancer, with few symptoms referable to the stomach. No surgical interference was thought of any service by the friends or the consultant, and hence nothing surgically was done, and no *post-mortem* was allowed.

The next and last case is that of a man, 58 years of age, of strong and robust physique. His wife told me he walked the floor every night on account of sleeplessness, and that when he tried hard to compose himself to sleep the muscular jerks of his arms and legs were so persistent that neither of them could sleep. Twelve months before this I had attended him for an acute cystitis, which left some glandular enlargement behind it in the right iliac fossa. Repeated examinations of the urine at short intervals revealed nothing, and no trace of the former glandular enlargement could be made out. The symptoms were all neurasthenic, and attributable to no cause physically discernible. He was garrulous, talkative, especially about himself and his ailments: and latterly had to give up business on account of his irritability of temper and extreme nervousness in moving about. Gradually he became very anæmic, and could not mount a stair for shortness of breath. Hæmic murmurs appeared at the base of his heart, and the eyes became swollen and puffy. He was now put to bed and a consultant called in, who took an extremely grave view of the condition. He thought it indicated pernicious anæmia, and advocated treatment in accordance with that view. His blood was examined by various authorities, none of whom could corroborate that view. His spleen seemed normal in every respect. The number of red corpuscles and the colour of them were certainly

deficient, but there was nothing in the blood-examination to indicate anything more than a profound condition of anæmia. Still, the neurasthenic symptoms went on and increased very much in severity, until it was actually painful to sit and watch him for any length of time. With rest in bed and the usual remedies for anæmia there was some improvement in the bloodlessness. When he was able to travel he was sent to the country and remained there a month, with considerable benefit to the anæmia and a fairly good improvement in the insomnia. I saw him on several occasions in the country, and his symptoms there were the same as he had at home, but in a more modified degree. After coming home, and with a combination of the anti-anæmic remedies, he gradually lost his pallor and gained in weight, and it was only on a realisation of this fact that the neurasthenic symptoms disappeared and he was able ultimately to resume business.

This man's anæmia was undoubtedly the cause of his neurasthenia, and acted first on the internal organs before showing any signs in his face outwardly. The anæmia of the brain would interfere with the delicate nervous mechanism of that organ—as also, no doubt, would the altered condition of the blood—and upset the due balance and proportion which always exist in a perfectly healthy state. The curious thing about this case was the simulating of conditions and symptoms which usually indicate grave mortal disease. In another way, it demonstrates to us the fact that serious disease states may so act on the nervous system as to give us evidences of something being organically wrong long before we get any outward and visible physical signs. In this last case, although the disease was apparently a benign one, it gave us all the nervous phenomena associated with many malignant diseases.

In summing up this all too brief description of a very interesting medical subject, what are the general conclusions to be deduced from the detailed facts and incidents recorded?

In the first place, these cases demonstrate to us the necessity of making observations away from what the patient considers the real seat of the disease. Just as our friend the lawyer avoids the putting of leading questions to any witness from whom he wishes to abstract the absolute truth, so the physician, in disease unravelling, ought to avoid the same pitfalls, and

learn to see the symptoms and signs of disease in the body as a concrete uniform organism. Specialism undoubtedly has its uses, its benefits, and its advantages, but it certainly has its drawbacks, and the question really resolves itself into the very simple one of whether its disadvantages are not greater than its advantages. Suppose the "stomach specialist" had been looking for his peculiar symptoms and signs in these few of many cases which might be recorded, how far—very far—would he not have been undulating on an ocean of error? The symptoms of almost all diseases in the very earliest stage are very frequently referable to organs situated some distance from the real organ of disease. Of course we shall be told here that this is a truism—a commonplace of everyday observation; but the strange thing is that it is just these truisms and commonplaces which need so much emphasis and intentness of utterance. Herbert Spencer, is it not, who says, in the preface to one edition of *The Data of Ethics*, that it is only by daily and ceaseless iteration and reiteration of commonplace Truths that you will enable men to assimilate them and permit them to filter into their minds, thoughts, and actions? Moreover, these platitudes often seem more fresh and invigorating when served up in some new setting, sufficiently original to stimulate thought and even antagonism.

In the second place and most important of all, we see that the emotional side of people is gravely affected by disease in other regions. As to the exact why and the wherefore, our paper makes no attempt to explain otherwise than suggest theories; may we not say with truth that it is a matter which lies outwith the limits of this subject? That the facts are there, brought about by certain conditions, no one who is at all observant of disease phenomena dare dispute, and our duty ends with a due observance and recording of the same. The emotions are disturbed in some people more than others by the kind and variety of disease, and it is our duty to take note of these particular changes which occur in certain people, and obviate or ameliorate them by every means in our power. To take into our consideration the mental attitude of the patient towards his disease is thought by some men to be coddling and nursing and spoiling the patient. Unless you are prescribing

an eight-ounce mixture for them, or suggesting an exploratory incision, you are thought to be going beyond the real duty of the physician or surgeon. No doubt we have all seen, either at home or abroad, a type—fortunately a rare type—of the real scientific physician and surgeon who has no element of human sympathy in his nature, whose patients are so much clinical material to be pigeon-holed, amplified, classified, and sacrificed. Such an attitude, in part perhaps contributed to by the necessities of teaching, may be possible in hospital practice, although even there the absence of sympathetic comprehension must make for therapeutic inefficiency; but in general practice such tactics would spell failure, and it is a righteous recognition of the fitness of things that this should be so. To think that patients have minds to be sneered at and ignored—minds which the philosopher and poet tell us are “the measure of mankind”—and that these are not affected by our sympathy and consideration of them in sorrow and suffering, is to our mind the ground rock of stubborn stupidity. Unless a patient is treated as a man—as a reasoning, thinking human being—there is no other way of gaining his confidence and respect, and getting him to carry out your wishes and intentions. The lay public can and do understand very much about their bodily organisation and its tendency to wrong-doing, and very few people are uninterested spectators of their own being’s welfare. Although they cannot express their thoughts in our technical language, they often can give you a very succinct and rational account of phenomena transpiring which they have carefully noted in their own minds. The mysterious secretiveness of any calling is its bane, and the only antidote to it is the frank spirit of rationalism, the product of deep, sound, and accurate knowledge of the multiform ramifications of the human spirit.

In the third place, we see that the hopes and fears of mankind influence acutely or tardily the progress and development of some diseases. Where the neurasthenic symptoms were most acute the gravity of the case increased in the same ratio. The *spes phthisica* of the ancients was an acknowledged symptom of phthisis pulmonalis, just as what we might call the *spes septicæmiæ puerperii* is a well-known and acknowledged symptom of childbed fever in its most aggravated and

fatal form. But these two mental states differ somewhat from the neurasthenic conditions we have been considering. These hopeful states are unconsciously mixed up with the patient's physical symptoms and signs—they are part and parcel of the patient's diseased state, and are not at all influenced and depressed by the reasoning faculty. The causes which bring these conditions about must be very much different from what we have in the neurasthenic condition. The neurasthenic is often painfully aware and conscious of his extreme nervousness, and tries by various efforts of will to combat it. There is an element of "sweet reasonableness" in neurasthenia which is entirely absent from the mechanical hopefulness of the poor phthisical patient.

In the fourth and last place, the deduction is that we must take a very wide and broad view of any treatment adopted. Any narrow, purblind methods which have for their sole aim and intention the removal of some one specific and definable physical cause, must be fraught with abject and self-mortifying failure. An expectant method must be adopted, and methods of amelioration to passing and transitory distressing symptoms and signs outwith the general trend of the *British Pharmacopœia*. Drug treatment alone in most of these cases would not tend to alleviate or remove the painful symptoms. A wise adaptation of means to ends, an utter disregard of convention and precedent must be had resort to in many of these cases before any good results can be obtained. We must remember that we are dealing with material which is in a constant state of flux, and that the conditions of disease, and the very diseases themselves, are very much different from what they were ten, twenty, or fifty years ago. The action and interaction of one country's civilisation upon another, the blending and intermarrying of races which knew not one another till recently—have all contributed their quota to the modifying causes which operate upon the soil and seed of disease. The facts recorded and the methods of treatment adopted by our progenitors have all to be carefully revised and re-edited by every succeeding generation, and the accumulated accretions of ages to be placed on one side. No one generation in medicine, any more than in any other subject, has a monopoly of truth and wisdom, and hence there will always be room—and, I trust, a

healthy toleration—for all honest convictions advanced by the tyro as well as the grave and reverend seignior. We need “all sorts and conditions of men’s” views of things to make up the gamut of human feeling in spite of Tennyson’s profound optimism in his famous lines—

“And yet we hope that somehow good
Will be the final goal of ill.”

Our own profession, perhaps more than any other, leads the way in this utilisation of evil—in this harnessing, as it were, the forces of disease to the car of human progress. Its motto has always been catholicity of taste with cosmopolitanism of aim, and let us all cherish the wish that it may long remain so:—

“What can we do o’er whom the unbeholden
Hangs in a night with which we cannot cope ;
What but look forward, and with faces golden
Speak to each other softly of a hope.”

THE AURAL SCHOOL-CLINIQUE.

By JAMES KERR LOVE, M.D.

THE advent of the aural school-clinique is perhaps the most important development which has taken place in the treatment of ear disease for the last quarter of a century. Apart from deaf-mutism and tuberculous disease, there is little ear disease amongst children till the beginning of the school period. It is when the child enters school that ear disease appears, for not only does he meet the infectious diseases scarlet fever and measles, but his naso-pharynx, often choked by adenoid growths and a good soil for the germs of disease, infects his middle ear, and suppuration begins there. Nearly all the middle-ear disease of later life, both suppurative and non-suppurative, commences during the earlier years of the school period.

Before the advent of the school-clinique the ears of school children were, for the most part, treated at the public dispensaries, *i.e.*, the outdoor departments of special and general hospitals. The medical officers, the nurses, and the equipment of these institutions were good, as good as the school-cliniques now are. And yet these institutions, with regard to the treatment of middle-ear suppuration, were partial failures. The school child could not attend these institutions without the loss of at least half a day of his work at school. He could not attend often enough without ruining his school work altogether. And lastly, he could not attend alone. His mother or her substitute had to come with him, and so the loss did not stop at the school—it spread to the home. As a rule, the treatment had to be given up or carried out by the mother, and as the manipulations in the treatment are difficult, or at least require some knowledge and skill, the treatment failed. I am speaking from an experience of nearly twenty years at the outdoor department of a large hospital.

Such disease starting in school life tends, if not properly

treated, to become chronic, and accounts for most of the deafness and most of the conditions requiring operation in later life. These contentions will hardly be seriously contested, and if they be true then treatment of ear disease during the school period is more important than its treatment at any subsequent period. If it be further granted—and this paper will fully establish the argument—that the treatment of ear disease during the school period is very successful, the contention that treatment of ear disease during the school period in the school-clinique is the most important development of the last quarter of a century will have been established.

In Scotland the school ear treatment clinique is only four years old. It is true that under the heading of inspection, treatment had been carried out by the writer at the School for the Semi-Deaf and Semi-Mute under the Glasgow School Board for two years previous to that. And it is also true that for over twenty years the writer has carried on a weekly clinique at the Glasgow Institution for the Deaf and Dumb. This is probably the oldest aural school-clinique in this country. But the ears of the school children of the elementary schools were not treated in school till four years ago.

My experience at the Glasgow Institution and at the School for the Semi-Deaf and Semi-Mute led me to expect good results from the treatment of school children by nurses in the elementary schools. At the Institution, to begin with, the number of cases of middle-ear suppuration was at first 6 or 7 per cent; now there are sometimes not more than 2 per cent. The children at the Institution are about half congenitally deaf and half cases of acquired deafness. At the Semi-Deaf School, where the children are nearly all cases of acquired deafness, the proportion of middle-ear suppuration is at least 10 per cent, and some of them are post-mastoid operation suppurations. The effect of treatment by nurses is therefore more difficult to estimate, but amongst 50 children at present only 6 or 8 are actively discharging.

The arrangements in Glasgow.—The following is an outline of the arrangements for treatment under the School Board:—Seven nurses give their whole time to the ear work. They

visit about 27 schools, or about 1 in 3 of the schools under the Board. Children from the other schools come to these 27 centres by arrangement. There are about 100,000 children in the schools of the Board. Four clinics have been equipped by the Board and the aurist visits all of these. Really, however, almost all the work is done at two of these clinics—Elmbank Crescent, near Charing Cross, and the annexe to the Calton School. All of these clinics are fully equipped. There is an aural chair for the child. A steriliser is kept continually boiling for the cleansing of instruments. Specula, cotton holders, syringes, forceps, &c., are provided in abundance. Electric light is the illuminant for the forehead mirrors. No operative work is done at the clinics, except the occasional removal of granulation masses under a local anæsthetic by means of Hartmann's forceps, the opening of boils, &c. Mastoid cases are sent to the nearest general or special hospital. Tonsils and adenoid cases are also referred to the hospital serving the district in which the child resides. The work done in the clinics is on the same lines as that done at the outdoor department of the hospital. The aurist's visit extends over two hours, and he has the assistance of four nurses during this visit. About 10 cases per hour are dealt with, and the visit takes place twice a week. Cases are dressed by the nurses twice a week as a rule, but cases requiring daily attention get this, and in many cases the dressing need be done only once a week or even less often. After two or three months batches of cases are brought before the aurist to be "passed off" as cured, or to have treatment altered. The parents are present during the first examination by the aurist, and, as a rule, at any subsequent examination by him, but not when the nurses carry out the routine treatment. When a case is passed off as cured, the parent is instructed to inform the headmaster should pain, deafness, or discharge recur. The cases reach the aurist by being sent by the Chief Medical Officer, by the school doctors, or by recommendation of the headmaster or class teacher. The work has been going on for four years, about 3,250 cases or about 3 per cent of the children attending school have been sent up, and although new cases are constantly coming up, the arrears of work have been overtaken, so that

these 3,250 children represent roughly the aural cases in an educational generation—a school attendance of eight years.

Of the 3,250 cases sent up, over 750 had masses of cerumen in their ears; over 1,400 had active suppuration of one or both middle ears; 750 showed evidence of past suppuration of the middle ear, although no discharge was present at the time of the examination. 774 had mouth-breathing or evidence of blocking of the naso-pharynx associated with deafness: whilst 128 suffered from disease, mostly suppuration, which was judged incurable, and in practice was found to be incurable without some major operation on the middle ear; 30 or 40 cases of deafness due to congenital syphilis were discovered. About 100 cases of deaf-mutism, congenital or acquired, had to be sent to special schools for the application of special educational methods.

The following conclusions may be advanced as the result of four years experience in the treatment of the ear diseases present in the children of the Glasgow School Board (the figures used are taken from the first three years only):—

1. The treatment of middle-ear suppuration in school children at aural school-cliniques is very satisfactory. In most cases permanent arrest of the discharge can be effected without operative treatment of any kind. In many more cases, operative treatment of the naso-pharynx, along with careful dressing of the discharging ears, resulted in cure. In some cases the dressing of the ears has to be continued for two or even three years before discharge ceases. The most obstinate cases result from measles and scarlet fever, which account for about an equal number of cases, and which together account for 20 per cent of the suppurating ears of school children. At present, measles is considered by the public as a trifling disease. It is really very destructive of life, and very productive of middle-ear disease and of deafness. It should be notified like scarlet fever, and, like the latter, be treated in an isolation hospital, especially when it occurs in the overcrowded dwellings of the poor. The suppurating middle ears of children who have scarlet fever and measles should be treated to a finish in the fever hospital by an otologist, even if operation be necessary for cure. After the middle-ear suppuration of the school child

has been arrested, and during the progress of treatment, water should be carefully excluded from the ear, and the use of the school bath, unless the ears be carefully protected, should be prohibited.

Great patience should be exercised in the treatment of the middle-ear suppuration of school children. Where one ear only is affected one has surgically a free hand, and the principles guiding the surgeon are the same as in suppurative disease occurring in the adult. Where both ears are affected, the principles are modified by the special conditions belonging to the school child, who has not yet attained a full vocabulary, who is not yet equipped mentally for the work of life, and whose chief asset for that attainment and that equipment is his sense of hearing, which in the schoolroom is by far the most important gateway of knowledge. The probable effect of any operation on acuity of hearing has to be taken into account more carefully in the school child than in the adult.

2. Although the present results of the treatment of middle-ear disease and deafness are good at the aural school-cliniques, they will be better when the post-nasal space can be attended to *in all cases* of middle-ear suppuration. At present this is not possible at the aural school-clinique, for operative treatment is not provided by the School Board. There is lack of co-operation, and often open antagonism, between the hospital and the school-clinique. Logically, no doubt, the authority which cleans out a school child's ear may also operate on his naso-pharynx. Logically, also, the School Board may also perform the mastoid operation, and open the school child's intra-cranial abscess. In practice the School Board stops at cleansing, and by this means tries to arrest the progress of suppurative disease of the ear. The best results cannot be got until either (1) the School Board assumes the whole responsibility for the treatment of children's ears, including all the operations practised in fully equipped hospitals, or (2) comes to some arrangement with existing hospitals for the operative treatment of ear disease.

3. Syphilitic deafness is not common in school children: about 1 per cent of those sent up have this type of deafness. But every syphilitic deaf child will lead the clinical observer

to a family which has been, or is being, ruined by a constitutional disease. The family picture thus got is a large number of conceptions, a large proportion of still-births, a large percentage of deaths during the first two years of life, chiefly from syphilitic meningitis, and the association with the deafness of blindness due to syphilitic disease of the eye. Syphilis is thus the most disastrous disease amongst us, from the point of view of the individual child, the family, and, as a consequence, of the nation. When it occurs in the child, syphilis should be notifiable like any other infectious disease, and the whole family put under treatment. There is no known treatment of the deafness of syphilis which is in any sense of the word successful.

4. As a minor but still important result of treatment, it should be noted that the teachers of the schools have offered spontaneous testimony to the improvement in educational progress which has occurred. Not only has the arrest of suppuration and the removal of post-nasal adenoids been followed by improved hearing, but the removal of ceruminous masses and of foreign bodies has given a similar result, and greater educational progress has taken place.

NOTE ON THE TREATMENT OF TUBERCULOUS SINUSES.

BY CHARLES BENNETT, M.B., CH.B.,

Extra Surgeon to Out-Patients, Western Infirmary and Royal Hospital
for Sick Children, Glasgow.

IN the post-operative treatment of surgical tuberculous conditions where eradication of infected tissue by operation cannot be complete, iodoform has for many years occupied the most prominent place. It was originally claimed that this substance was in the nature of a specific for tuberculosis, in virtue of the iodine liberated in the presence of the body tissues. This claim, however, cannot be held as established, despite the fact that iodoform still remains something of a fetish with many.

Changes in treatment have been few, and for the most part in the direction of finding efficient substitutes for iodoform that should lack some or all of its objectionable properties. Among these latter the principal are (1) its doubtful antiseptic qualities; (2) the production of skin rash; (3) its unpleasant, betraying odour; and (4) the necessity of submitting it before use to a process of dry sterilisation.

Bismuth has of late found many advocates; but this also requires to be sterilised, and its superiority over iodoform in antiseptic properties has, I think, yet to be proved.

Some surgeons are content to scrape sinuses as thoroughly as possible, and then to rely on the use of simple sterilised gauze as packing. But most of those in contact with considerable numbers of surgical tuberculous cases are agreed that, particularly on account of the usual additional pyogenic infection present in sinuses, the continuous action of a stimulating antiseptic is necessary.

Accordingly, some months ago, in the Sick Children's Dispensary and elsewhere, I began to experiment with spirituous solutions of substances belonging to what may be termed the camphor series, and after short trials of camphor, thymol, and menthol, I felt most impressed by the results due to the last. A prolonged trial of this substance in a large number of cases has left no doubt in my mind as to its efficacy and reliability, and I have now no hesitation in using it exclusively.

Unfamiliarity with the use of menthol in the cases of young children rendered the utmost caution necessary in the earlier experiments lest injurious action on the surrounding skin should supervene. The possibility of undesirable after-effects from absorption of the drug was also kept in view; but neither of these dangers has been realised. Indeed, as regards the first point, the healthy condition of the skin right up to the sinus margin all through the course of treatment is very marked.

The granulations of the sinuses remain of a healthy type, discharge is rapidly reduced to a minimum, and the period of healing noticeably shortened. An added benefit is the local anæsthetic action in preventing post-operative pain.

Menthol, as is well known, is highly soluble in alcohol, and a solution can be prepared very rapidly. The strength I find most generally serviceable is about five grains menthol per drachm of methylated spirit. Sterilised white gauze ribbon is soaked in the solution, and, when the excess fluid has been pressed out, is immediately used as packing. The dressing need not be changed for three days.

There are those who may attribute some of the results to the alcohol in which the menthol is dissolved. My experience, however, of gauze saturated with spirit only does not justify such a conclusion.

The powerful antiseptic qualities of menthol have long been recognised, and I am, of course, aware of its fairly wide use in throat and nose surgery. The object of this note is merely to draw attention to the satisfactory results obtained in surgical tuberculous conditions by the exclusive use of menthol over a sufficiently long period, and to claim for it superiority over iodoform, iodine solutions, bismuth salts, and the other substances at present so extensively employed for the cases under notice. A point of subsidiary importance, but not to be entirely ignored, is that the cost of menthol is considerably less than that of iodoform.

From the success of menthol in tuberculous sinuses with secondary infection, it may reasonably be inferred that its application in chronic, non-tuberculous, septic conditions would be equally efficacious. The number of cases of this type, however, to which I have applied the treatment is not yet so considerable as to warrant definite conclusions.

Obituary.

JOHN MACRURY, M.B., C.M. GLASG.,
MILLPORT.

WE regret to announce the death of Mr. John MacRury, of Millport, which took place suddenly on 4th January at a nursing home in Glasgow. A student of Glasgow University, Mr. MacRury took the degrees of M.B., C.M. in 1877, and after graduation he filled the posts of house surgeon and house physician at the Western Infirmary. He was also for some time assistant physician to the Glasgow Hospital for Diseases of the Skin. Settling in Millport, although his time was largely occupied by professional duties, he was also enabled to indulge his bent towards ornithology, on which he was an acknowledged authority. Two of his papers, "The Birds of the Island of Barra" and "Notes on Ornithology," are incorporated in Messrs. Harvie-Brown and Buckley's *Vertebrate Fauna of the Outer Hebrides*.

GEORGE BUCHAN, M.D. GLASG.,
ST. HELEN'S.

WE regret to record the death of Dr. George Buchan, which occurred at St. Helen's on 17th January. Dr. Buchan, who had been for a considerable time retired from practice, studied medicine at Glasgow University, where he took the degrees of M.B., C.M. in 1877, and, ten years later, that of M.D. He was at one time Medical Officer of Health for Kilmaurs, and was afterwards appointed Medical Superintendent of the Glasgow Town's Hospital and Asylum. A paper of his, upon "Two Cases of Brain Disease," appeared in this *Journal* in 1889. He went upon his retirement to St. Helen's, Lancashire, where he died at the age of 71 years.

CURRENT TOPICS.

APPOINTMENTS.—The following appointments have recently been made:—

H. M. Galt, M.B., C.M.Glasg. (1891), B.Sc., D.P.H., Captain, R.A.M.C.(T.F.), to be additional Examiner in Medical Jurisprudence and Public Health for the Degrees in Science and Medicine at Glasgow University.

J. R. Kerr, Ch.M.Glasg. (M.B., 1904), to be Head Surgeon to the Allies Hospital, Yvetot, France.

J. M'Keith, M.B., C.M.Glasg. (1885), to be Medical Officer to the Tuberculosis Department of the Central London Throat, Nose, and Ear Hospital.

Royal Navy (1st January): To be temporary Surgeon—R. Aitken, M.B., Ch.B.Glasg. (1915).

5th January: Temporary Surgeon R. Aitken, M.B., Ch.B. Glasg. (1915), to Chatham Hospital, to date 7th January.

11th January: Temporary Surgeons H. B. Lawrie, M.B., Ch.B.Glasg. (1915), to *Vivid*, additional for Plymouth Hospital, to date 15th January, and A. M. Dunlop, M.B., Ch.B.Glasg. (1914), to *Pembroke*, additional for Chatham Hospital, to date 15th January.

Royal Army Medical Corps (14th December, 1915): To be temporary Captains—J. F. R. Gairdner, M.B., Ch.B.Glasg. (1894); W. Rankin, M.B., Ch.B.Glasg. (1904). To be temporary Lieutenants—J. R. R. Ritchie, M.B., Ch.B. Glasg. (1912); J. W. M'Donald, M.B., Ch.B.Glasg. (1913); W. D. Rose, M.B., C.M. Glasg. (1892); T. M. Fletcher, M.B., C.M.Glasg. (1896); W. E. Gemmell, M.B., Ch.B.Glasg. (1908); J. A. Gilfillan, M.B., Ch.B. Glasg. (1914); W. M'Connell, M.B., Ch.B.Glasg. (1909).

18th December: To be temporary Captains—Temporary Lieutenants M. A. Macdonald, M.B., Ch.B.Glasg. (1910); M. J. Murray, M.B., Ch.B.Glasg. (1912); F. W. M'Millan, M.B., Ch.B.

Glasg. (1914); D. W. Reid, M.B., Ch.B.Glasg. (1912); J. J. Russell, M.B., Ch.B.Glasg. (1910); C. Lundie, M.B., Ch.B.Glasg. (1912).

23rd December: To be temporary Captain—H. Dickie, M.D. Glasg. (M.B., 1887). To be temporary Lieutenants—R. B. Austin, M.B., Ch.B.Glasg. (1910); J. R. Craig, M.B., Ch.B.Glasg. (1907); J. W. Jackson, M.B., C.M.Glasg. (1895); H. Miller, M.B., Ch.B.Glasg. (1899).

1st January, 1916: To be temporary Lieutenants—J. A. Harper, M.B., Ch.B.Glasg. (1912); J. F. Lambie, M.B., Ch.B. Glasg. (1900); W. A. Paterson, M.B., C.M.Glasg. (1892); A. E. Clark, M.B., Ch.B.Glasg. (1903); R. M. Lang, M.B., Ch.B.Glasg. (1915).

5th January: Temporary Lieutenants to be temporary Captains—N. J. Sinclair, M.B., Ch.B.Glasg. (1913); J. A. N. Scott, M.D.Glasg. (M.B., 1890); J. F. M. Sloan, M.B., Ch.B.Glasg. (1912); D. D. Logan, M.D.Glasg. (M.B., 1900); R. S. Miller, M.D.Glasg. (M.B., 1911); J. T. Kirkland, M.B., Ch.B.Glasg. (1909); A. B. Cluckie, M.B., Ch.B.Glasg. (1908); D. Duff, F.R.C.S.E., F.R.F.P.S.G.; F. A. Murray, M.D.Glasg. (M.B., 1905); C. J. B. Buchheim, M.B., Ch.B.Glasg. (1909); J. D. C. Swan, M.B., Ch.B.Glasg. (1899); R. M. Greig, M.B., Ch.B.Glasg. (1914); J. Jack, M.B., Ch.B.Glasg. (1910); W. J. Henry, M.B., Ch.B. Glasg. (1913); E. S. Chapman, M.D.Glasg. (M.B., 1901), F.R.C.S.E.; G. Macleod, M.B., Ch.B.Glasg. (1909); J. J. Sinclair, M.B., Ch.B. Glasg. (1909); J. B. McCabe, M.B., Ch.B.Glasg. (1905).

11th January: To be temporary Captains—Temporary Lieutenants R. C. Robertson, M.B., Ch.B. Glasg. (1914); J. N. Dobbie, M.B., Ch.B.Glasg. (1914); D. C. Hanson, M.B., Ch.B. Glasg. (1914); J. Gibson, M.B., Ch.B.Glasg. (1911).

R.A.M.C., Territorial Force (16th December, 1915): Lowland Field Ambulance—Captain W. A. Burns, M.B., Ch.B.Glasg. (1900), to be Major.

17th December: Attached to other than medical units—Lieutenant-Colonel R. C. Highet, M.D.Glasg. (M.B., 1886), Retired List, T.F. (late Forth Royal Garrison Artillery), to be Major.

8th January, 1916: Western General Hospital—Lieutenant G. I. Strachan, M.B., Ch.B.Glasg. (1910), to be Captain.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS.—At the December meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, Hugh Morton, M.D., Glasgow, was admitted (after examination) as a Fellow of Faculty, *qua* Physician, qualified to hold office.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the Royal College of Surgeons held on 15th December the following gentlemen, having passed the requisite examinations between 4th and 6th October, 1915, were admitted Fellows:—James Buchanan, M.B., Ch.B., Univ. Glasg.; Shyama Pado Chattopadhyaya, L.R.C.S.E., &c.; Jacobus Stephanus Du Toit, M.D., Univ. Edin.; Arthur Owen Evans, M.B., Ch.B., Univ. New. Zeal.; James Norman Jackson Hartley, M.B., Ch.B., Univ. Edin.; Alfred William Macbeth, M.D., C.M., Queen's Univ., Kingston, Ont., Canada, L.C.P. & S., Saskatchewan.

THE LIBRARY OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—The report of the Library Committee of the Royal College of Physicians of Ireland for the year 1914-1915, the fiftieth year since Sir Patrick's Dun's Library was opened in the present buildings of the College, contains an interesting account of its history. Sir Patrick's Dun's bequest, giving his books "for the Lawfull use of the S^d Professors and College of Physitians," took effect in 1713. The library was at first lodged in his house, where the College met for some years, but in 1726 it passed into the custody of the Fellows, and in 1741 provision was made for its governance in an Act of the Irish Parliament. It continued to be neglected, however, for some time afterwards, and in 1756 an enquiry revealed that the remains of Sir Patrick Dun's library, then in the possession of Dr. Quin, King's Professor of Physic, had shrunk to some three hundred volumes. In 1785 a further Act was passed for the regulation of the estate, and two years later a committee of the College appointed a librarian, and provided that all books thereafter purchased should be added to Sir Patrick's Dun's bequest. In 1794 the earliest catalogue of the library was printed, and contained entries of 1,179 volumes. The first librarian proved unsatisfactory, and rules more closely defining and restricting his powers, and at the same time limiting the expenditure, were

incorporated in the School of Physic Act of 1800. The second printed catalogue, which appeared in 1827, contained 1,419 book entries, and an appendix containing 325 additional entries appeared in 1832. Till 1865 the library was merely a lending library, and there were no facilities for readers. In that year, when the books were removed from Sir Patrick Dun's Hospital to the new buildings of the College, it was decided that for the future it should also be a reading library. From that time accretions have been rapid, and it now contains 12,934 bound volumes, exclusive of duplicates, and 186 bound volumes of pamphlets. Although it has necessarily suffered from the effects of the war, and purchases have fallen off in the past year, the deficiency has been largely compensated for by an increase in the number of books presented to the library, which promises to prove of steadily increasing usefulness both to borrowers and readers.

ATTESTATION OF MEDICAL STUDENTS.—The position of third year medical students was referred to at the December meeting of Glasgow University Court. At a meeting of the Senate on 23rd November the Principal (Sir Donald MacAlister) reported that he had been in communication with the War Office regarding the position of third year medical students, and that it had been decided that students who at or before the close of the present winter session would be qualified for admission to one of the professional examinations for third year students of medicine, and who duly entered for the examination for which they were now studying, would not be attested as recruits until after the examination was concluded. Further, if they were successful in passing the professional examinations, they would be included in the class under Lord Derby's scheme who were to continue their professional studies with a view to graduation in medicine. In view of this the Senate had resolved, subject to the approval of the University Court, that in March, 1916, qualified candidates who had completed eight terms of medical study should be admitted to the third professional examination, the subjects of which might be taken singly or together. The Court approved.

Mr. John M'Credie, of Stranraer, who died in 1891, the residue of his estate was to be held in life-rent by his sister, and thereafter divided by his trustees among public charitable institutions in Glasgow. Miss M'Credie died in February, 1914, and the following medical charities have benefited by the allocation made by the trustees:—The Royal, Western, and Victoria Infirmaries, Glasgow, £2,000 each; the Royal Glasgow Asylum for the Blind, £1,000; the Scottish Branch British Red Cross Society, Glasgow, £500; the Glasgow Royal Maternity and Women's Hospital, £300; the Glasgow Royal Cancer Hospital, £250. Smaller sums were also allocated to the Glasgow Ear, Nose, and Throat Hospital; Glasgow Eye Infirmary; Royal Samaritan Hospital for Women, Glasgow; Glasgow Hospital for Women; Royal Hospital for Sick Children, Glasgow; and Ophthalmic Institution (Royal Infirmary), Glasgow.

Under the will of the late Miss Elizabeth Inglis, Glasgow, a sum of £1,000 each has been bequeathed to the Royal, Western, and Victoria Infirmaries and to the Glasgow Royal Cancer Hospital. The residue of the estate, amounting to a substantial sum, is to be equally divided between the Orphan Homes of Scotland (Quarrier's Homes), the Royal, Western, and Victoria Infirmaries, and the United Free Church of Scotland.

NOTIFICATION OF MEASLES.—The Local Government Board, in a circular to local authorities, have announced their decision to issue an order applying throughout England and Wales a system of notification of measles and German measles, and enabling local authorities to undertake measures for the care of patients suffering from these diseases. The circular points out that the Registrar-General's statistics show that during the year 1915 there has been a large increase in mortality from measles. The average number of deaths occurring annually from this disease in England and Wales is 11,000, of which the great majority are deaths of children under 5 years of age. During the first half of the year 1915 the number of deaths reached a total of 12,414.

Representations have been made to the Board by the Army Council that measles has caused a large amount of disablement amongst the troops in this country, and that accurate information of the presence of the disease among the civil population

would be of the utmost benefit to the military authorities. The Order, which came into operation on 1st January, enables local authorities to provide medical, including nursing, assistance for the poor; but at the same time the Board refrains from urging any action involving serious additional expenditure, and recommends that local authorities should enlist the services of voluntary helpers to supplement the work of the official health visitors.

ADMINISTRATION OF MEDICAL BENEFIT.—The Scottish Insurance Commissioners have made further amending regulations with reference to the administration of medical benefit, providing that the terms of service of doctors and chemists on the panel may be altered once in the course of 1916, as also that an Insurance Committee may, after consultation with the Panel Committee, require doctors not to give repeat prescriptions for medicines. Under the regulations, patients on the list of a doctor serving with the forces during the current month are not entitled to change their doctor unless, in addition to giving the usual notice, they satisfy the Medical Service Sub-Committee of the Insurance Committee that they have reasonable grounds for desiring the change.

HEALTH INSURANCE COMMITTEE ON MEDICAL RESEARCH.—The Medical Research Committee's first annual report to the National Health Insurance Joint Committee deals with work accomplished during the year ended 1st October, 1915. The sum available for the purposes of research for the past year amounted to £55,000. During the summer and autumn of 1913 the committee closely studied the numerous questions connected with the formation of a national scheme of medical research, and it was estimated that, roughly, £60,000 would be needed for the provision and equipment of a central research institute. The general plan of the work of the committee marks clearly a line of policy by which part, but only a part, of the new National Fund for Research is devoted to work centralised in laboratories under their control and carried out by a scientific staff to be directly appointed by the committee, while the other and larger part of the fund is allocated to the support of workers and their

investigations in laboratories and institutes not directly under the control of the committee. It is a fundamental feature of this general scheme that independent investigations within the voluntary and private institutions in which almost the whole of the research work has been hitherto carried out in Great Britain, with little if any support from State authorities, should receive assistance from the Medical Research Fund, in so far as their work is appropriate to medical research or capable of being co-ordinated within a general scheme for the organised advancement of medical knowledge. The war, it is stated in the report, interfered with plans for research which the committee had prepared, but schemes actually initiated included those for dealing with tuberculosis, hygienic relations of milk, rheumatic infections, diseases of the nervous system, dust inhalations and pulmonary disease, diabetes, diseases of the heart, and general pathological researches. At the outbreak of the war it became obvious to the committee that they were charged with the administration of State resources for scientific and medical work which ought, as a matter of course, to be placed freely at the disposal of the National Executive, and especially of the Army Medical Department, for suitable use in connection with problems arising out of the war. The report deals in some detail with certain such problems, including the pathology and treatment of infected wounds, skin-grafting of wounds, and *x-ray* work at military hospitals; and it concludes by expressing the sense of responsibility felt by the members of committee for the co-ordination of scientific men "towards the advancement of medical knowledge and the diminution of preventable pain," and by recording the committee's gratification that even in its infancy the organisation has been found "directly applicable and useful to the special needs of the present time."

LITERARY INTELLIGENCE.—Messrs. Alcan and Lisbonne, of the *Librairie Félix Alcan*, Paris, announce that the directors of the *Revue de Médecine* and the *Revue de Chirurgie* have decided to resume publication of these periodicals, which have not appeared since August, 1914. The numbers due to the subscribers of 1914 will be sent to them in two fasciculi, and those for 1916 will appear as formerly and at the usual intervals. While papers of general interest will not be

neglected, a large place will be given to the medicine and surgery of war.

ROYAL INFIRMARY DORCAS SOCIETY.—The annual meeting of the Dorcas Society in connection with the Royal Infirmary, Glasgow, was held on 2nd December in the Merchants' House, Mr. Francis Henderson presiding. In the report of the committee for the past year it was stated that 947 patients had been supplied with 1,975 articles of new underclothing, besides a supply of cast-off outer garments. Of the patients supplied 623 were medical cases and 324 surgical, while of the total number 230 were under 14 years of age. Many of the patients had been helped in other ways, such as the payment of rent and weekly grants of money to help during convalescence. When the father and breadwinner was in the Infirmary a small weekly sum assisted to keep up the home, thereby relieving the mind of the patient and helping his recovery. Seven patients had been supplied with, or assisted to purchase, artificial limbs and other surgical appliances. In the first part of the year 16 soldiers were provided with 88 under-garments, given partly by the Red Cross Society, partly by gifts from the public. This work had now ceased, the clothing for convalescent soldiers being provided at Stobhill. The committee expressed their great regret at the resignation of their president, Mrs. Hugh Brown, who had been connected with the society for thirty-four years. An account was also given of the work of the Society's Bible-woman and of the Bible and Flower Mission. The financial statement showed that the income amounted to £441, 19s. 5d., and the expenditure to £461, 18s. 9d., leaving a deficit of £19, 19s. 4d., which the chairman undertook to discharge.

The chairman, in moving approval of the report, referred to the beneficial character of the work carried on by the Society on behalf of the patients in the Infirmary and their dependants. In a great many cases, he said, it would have been impossible for the families of the patients to keep the home together had it not been for the assistance received from the Dorcas Society. It was regrettable that there was again a financial deficit, because he was sure that if the work of the Royal Infirmary recommended itself to the general public so also should the work of the Society. The one was the complement of the other, and they

were not doing their duty as citizens if they did not show their appreciation of the Dorcas Society by supporting it in every way they possibly could.

Dr. J. B. Mackenzie Anderson seconded, and the report was adopted.

The Rev. H. S. McClelland, Trinity Congregational Church, moved, and Mr. James Craig seconded the appointment of office-bearers, including the following:—Hon. President, Lady Campbell of Succoth; President, Mrs. Balmain; Vice-Presidents, Miss Anne B. Church, Mrs. Campbell Douglas (Edinburgh), and Mrs. Hedderwick; Hon. Acting Secretary, Mrs. John Reid; Hon. Secretary, Mr. Robert Gourlay, LL.D.; Hon. Acting Treasurer, Mrs. Kirkpatrick; Hon. Treasurer, Mr. T. W. M. Watson, C.A.

A vote of thanks was awarded to the chairman on the motion of Mr. William George Black, LL.D.

WESTERN INFIRMARY SAMARITAN SOCIETY.—The forty-first annual meeting of the Samaritan Society of the Western Infirmary, Glasgow, was held on 16th December in the Lecture Hall of the Infirmary, Sir Hector Cameron presiding. The annual report stated that, in spite of the demands created by the war for additional organisations for relief and for more and more support from the public, the Society had been able to continue its unobtrusive work, and to meet the extra calls made upon it. The Ladies' Committee continued to visit the wards of the Infirmary, and, when expedient, to give such help as might keep the home together while the breadwinner was laid aside. During the year 205 persons were assisted in many different ways, most of them by receiving 2s. 6d. weekly for a month or longer. The accounts showed an expenditure of £382, including grants amounting to £30 for wounded soldiers. The balance on the year's operations was £26, as compared with £53 in 1914.

The chairman said that the work of the Society was extremely important. It might be considered as part and parcel of the curative means of the Infirmary. When a man was suddenly injured at his work, or struck down, perhaps with equal suddenness, by illness, necessitating treatment in the Infirmary, they could understand with what perturbation he looked forward very often to the position of those at home who were

absolutely unprepared for such a blow. There was nothing, he believed, which militated against quick and satisfactory recovery more than a state of mind of that sort. The knowledge that his family would be sympathetically looked after, and helped financially if necessary by that Society, would tend to the patient's recovery as well as any medicine that could be prescribed for him.

The reports were adopted, and votes of thanks were accorded to the visitors and collectors. The office-bearers of the Society were re-elected.

GLASGOW MEDICAL MISSION.—The annual meeting of the Glasgow Medical Missionary Society was held on 1st December in the hall of the Royal Faculty of Physicians and Surgeons—Mr. James Templeton presiding. Among those present were the Rev. Dr. Dickie, Mr. A. Ernest Maylard, Dr. Yellowlees, Dr. Ellie Mackenzie, Dr. W. L. Reid, Dr. C. R. Maclean, Mr. J. R. Macfie, Mr. J. C. Robertson, Mr. Robert Gray, and Mr. Robert Shaw, secretary.

The chairman submitted the annual report, in which it was stated that there had been a slight addition to the number of patients treated, and an increase in the price of drugs and medical appliances, but the total expenditure of the mission had by strict economy been somewhat reduced. The work, which varied little from year to year, had been carried on in a very satisfactory manner, and the directors were gratified with the results. Much suffering had been relieved by the medical help given to the patients. There had been 26,451 patients attended to at the dispensaries, and 1,091 visits had been paid to patients by superintendents and assistant doctors. Nurses had paid 2,035 visits, and Bible women 2,929. The ordinary expenditure had exceeded the ordinary income by about £285. In moving the adoption of the report the chairman said the society was going on prosperously notwithstanding the war. Although there was again a deficit in the ordinary funds, the finances were in a satisfactory condition owing to the fact that certain friends had left them legacies. These bequests were of great value to an institution such as the Medical Mission.

Dr. Ellie Mackenzie seconded, and the report was adopted.

On the motion of Dr. Dickie, office-bearers were elected for the ensuing year.

ROYAL INFIRMARY: NEW YEAR'S DAY MEETING.—The New Year's Day meeting with the nurses of the Glasgow Royal Infirmary was held in the museum of the new buildings, Lord Provost Dunlop presiding. Among those present on the platform were Mrs. Dunlop, Mr. James Macfarlane (chairman of the managers of the Infirmary) and Mrs. Macfarlane, Sir Samuel and Lady Chisholm, Dr. and Mrs. William George Black, Major Garroway, Dr. Mackenzie, Mr. Hugh Reid, Mr. John Reid, Dr. Perry, Mr. C. J. Cleland, M.V.O., Bailie Hannay, Dr. J. Maxtone Thom (superintendent), and Miss Melrose (matron). Apologies for absence were intimated from Dr. J. D. Hedderwick and Mr. Timothy Warren.

The Lord Provost said he was glad to begin the New Year by wishing the nurses and all the other members of the staff of the Infirmary a happy New Year, and to express the belief that by their efforts the institution would maintain its high reputation as one of the leading hospitals in Scotland. A year ago they had hoped that when they met again the war would be over. Unhappily that was not the case. They looked forward with the hope that it would be ended before another New Year's Day came round. Practically all the members of the medical and surgical staff of the Infirmary were doing military duty. Thirty-eight held commissions in the Royal Army Medical Corps, and twelve were engaged in Red Cross hospitals. Eight wards with an aggregate of 150 beds had been set aside for the treatment of wounded sailors and soldiers. Twenty-five members of the medical staff who held commissions were so actively employed on war duty that they were not available for the ordinary cases in the Infirmary. Notwithstanding the depletion of the staff the ordinary work had gone on as usual, along with the addition due to the admission of soldiers and sailors. The accommodation for these men had not encroached upon that used for civilian patients owing to the old buildings not having been demolished when the reconstruction of the Infirmary was completed. In regard to other members of the personnel of the Infirmary, twenty-eight had been called up as Reservists, and had either joined the

Army or had been attested under Lord Derby's scheme. One man had been killed in action and five had been invalided home. Special thanks were due to those who under the difficulties caused by the war had loyally carried on the work of the Infirmary with unimpaired efficiency. The Lord Provost referred afterwards to the necessity of increased public financial support in aid of the work. He felt sure that if the claims of the infirmaries were properly put before the public the money would be forthcoming. In looking over the subscription list he had often thought that many people who regularly gave a guinea would be willing to give two guineas if they were asked to increase their subscriptions. If the matter were gone about as it ought to be there should be no difficulty in getting all the money that was required. There were many claims upon the citizens at present, and they had responded nobly, but the hospitals should be one of their first charges.

Mr. Macfarlane said he was glad to be able to record that at the end of his first year as chairman of the board of managers the heartiest co-operation had prevailed among all who were engaged in the work of the Infirmary. Since the war began they had sent out over 70 members of the nursing staff who were now engaged in Territorial hospitals in different parts of the war area. They were all delighted to learn that among those who had been mentioned in Sir John French's despatch were two of their nurses, Miss Annie Duncan and Miss M. Williamson, and three of their former nurses, Miss Stronach, Miss Mowat, and Miss Caswell. It had been cheering to receive offers of help from former nurses in carrying on the work under great difficulty. They had also to record the assistance they had had from members of the Voluntary Aid Detachments, whose work had been most satisfactory. Referring to the financial position of the Infirmary, Mr. Macfarlane said that last year the deficiency in ordinary and extraordinary revenue amounted to about £3,000. He was sorry to say that this year the deficiency would be very much greater. The lack of sufficient support arose principally from lack of interest or from lack of knowledge. If they appealed to the popular imagination money would be got much more readily. He instanced the case of a public work in the East End, which gave about £70 to the Infirmary, and which in thirteen months

had subscribed over £1,000 towards various war relief funds. If the citizens could be stirred and their knowledge of the work done by the infirmaries were extended, he believed that contributions would be very much increased. During the year the admissions of civilian cases numbered 9,982 (increase 18), the mortality-rate was 6·35 per cent, the daily average resident was 663, the lowest number in the house was 592, and the greatest 723. The admissions of soldiers and sailors numbered 713, compared with 327 for the shorter period of the previous year in which the war was in progress; the mortality-rate was 1·4 per cent, and the daily average resident was 77. The total number treated within the gates, including the dispensary cases, was 45,044, against 46,743 in the previous year. At no period in its history had the efficiency of the Infirmary been greater than at present.

Sir Samuel Chisholm, in moving a vote of thanks to the Lord Provost, paid a high compliment to Mr. Dunlop for the manner in which he had discharged his civic duties during the first year of his office. If in the present circumstances of the country, Sir Samuel said, Glasgow had contributed its full quota, and perhaps more than its full quota, of the men who had gone to the front, and if Glasgow had contributed much more than any other city to the various funds that had gone to ameliorate the condition of the poor or to provide for the comfort of the wounded, very much of that was due to the vigour and the energy with which the Lord Provost had thrown himself into all these movements.

The Lord Provost, in acknowledging the compliment, said it was encouraging to know that any little service he had been able to render was appreciated.

WESTERN INFIRMARY: COMPLETION OF BUILDING SCHEME.—At the Christmas meeting held on 23rd December in connection with the Western Infirmary the new departments rendered available by the completion of the building scheme were formally opened, the Davis Admission Department by Miss Davis, and the William Robertson Operating Theatre by Mr. William Robertson. The proceedings took place before a large company in the new Admission Department, Sir Matthew Arthur, chairman of the board of managers, presiding.

The chairman in his opening remarks explained that the large dispensary hall was at present being used as a ward for military patients. Early in the year, in common with similar institutions, the managers offered 100 beds for wounded soldiers, and they were most anxious that this should interfere as little as possible with the treatment of civilian cases. Fortunately the dispensary was so well planned that the consulting rooms and operating theatres could in a case of emergency like this be entered from the other side, and the hall made an excellent ward of 50 beds with all appliances conveniently situated. The number of military patients now remaining in the hospital was small. They were very glad that the building in which they were met that day was nearing completion. The Admission Department of the Western Infirmary was altogether out of keeping with the rest of the institution. It was impossible to improve it without reconstruction, and the managers had long looked forward to the erection of this block to provide a new Admission Department, to connect the new wing with the main building, and to supply the operating theatres and administrative rooms required in connection with the new wing. They could not have begun this addition but for the generous gift of the Davis Trustees, influenced very much by Miss Davis, whom they had the pleasure of having with them that day as one of the trustees. The Admission Department was the groundwork of the scheme, and the managers realised very fully that it was this most handsome donation of £16,000 that enabled them to complete their building plan. Those present would have an opportunity that day of inspecting the various rooms not only adjoining that hall, but those behind, where minor operations could be carried out and patients cared for until they were able to leave. These slighter cases and casualties often came in at night, and if taken to the wards they might disturb the patients there, so this important adjunct to the convenient and well-equipped Admission Department was a great boon to the Infirmary. On the floor above they had what was recognised by experts to be one of the most perfect operating theatres in existence. This was the generous gift of their friend and fellow-manager, Mr. William Robertson, who, having already supplied the large ward in the new wing at a cost of £8,000, had completed his unit by most kindly giving £3,500 for the

building and equipment of this theatre. He was sure they would realise that, like the Admission Department, it was in every way excellent. They had much to be thankful for in this satisfactory completion of their building scheme, thanks to the generosity of their friends.

There was only one cloud on their horizon, but it was a big one; the expense of maintenance in these days of higher prices greatly exceeded their income. He trusted it was understood that this new building would not increase the annual expenditure. It greatly helped the efficiency of the Infirmary, it benefited the patients and added to their comfort, but not to the number of beds. The work of the Infirmary, however, had increased more rapidly than its income, largely because the public did not realise how great that work was, and it would be necessary to make an appeal to the benevolence of their many friends in order that the services the Infirmary rendered might be continued in their full efficiency. The year had been a strenuous one for those engaged in the work of the Infirmary. Some of their physicians and surgeons were entirely engaged in war work, and the remainder combined it with their other duties. Colonel Mackintosh and their matron, Miss Gregory Smith, had been incessant in their labours, and many of their nurses were on war service either at home or abroad. One of the great advantages an Infirmary like this rendered to the community was the facility it afforded to nurses for acquiring a thorough knowledge of their profession. And a noble profession it was, calling for much self-sacrifice and devotion to duty, for combined with the experience there must be that love of her work and sympathy and kindness which enabled a nurse to encourage and support her patients to overcome their sufferings. The inestimable value of trained nurses, and the necessity for their services, had never been more fully realised than now. The war had shown that no danger and no hardships had deterred women from taking their part in the relief of those who required aid, whether in our own armies or in the countries of our allies. No land had been too distant, no disease too dire. They knew what they had accomplished, but they could only imagine what they themselves had had to endure: and the record of these brave women would be a memorable one in history. One splendid instance of heroism was that of the

martyr, Nurse Edith Cavell. Her life work and her death so bravely met were a noble example of love for others and of patriotism that would make her memory ever revered.

Miss Davis, in declaring the "Davis Admission Department" open, said it was the ideal made real of the presiding genius of the Western Infirmary, Colonel Mackintosh, and it would for ever remain a most precious testimony of his work, his forethought. On behalf of her brother and herself she thanked Sir Matthew Arthur and the managers for their perfect tribute to the memory of their late uncle in naming part of the building after him. The managers were to be congratulated on the beautiful completion of their high aims to further benefit and bless our city.

Mr. William Robertson next declared the "William Robertson Operating Theatre" open. It had given him very great pleasure, he said, to be the means of assisting in the development of the Western Infirmary, and in this connection he enlarged on the work of Colonel Mackintosh and of the staff of the institution.

Colonel Roxburgh, convener of the House Committee, moved a vote of thanks to Miss Davis and to Mr. Robertson for their generous gifts. He pointed to what had been done on the voluntary principle so far as hospitals were concerned, and remarked that the only alternative to voluntary support would be to put these institutions on the rates, which would mean that they would be directed or managed by either the State or the municipality. He was sure none of them would like to see the Western Infirmary managed otherwise than it had been. With the extension indicated, he went on to say, he thought the Infirmary was about as large as it ought to be. It had not yet perhaps reached the limit that perhaps some of their friends would like to see; it was certainly not sufficiently large to accommodate all the people waiting to get into it; but it seemed to him that it had about reached the limit of what they could keep going from the financial point of view. The hospital now was practically complete in every respect, and he did not think they need look forward, unless some special gift was given for some special purpose, to further building expenditure. What the managers had to do was to direct their attention to trying to get a sufficient sum to enable the full benefit of the Infirmary to be open to the community. He

thought the public of Glasgow would give them that money. They realised the necessity of the work being continued, and if they did not give them the money the only alternative would be that they should go on the State.

Mr. Robertson, on behalf of Miss Davis and himself, acknowledged the vote of thanks.

Lady Inverclyde then presented the prizes won by nurses in March and October. At the March examination Nurse Elise Margaret Egger gained the prize in medical nursing, and Nurse Catherine Duncan Love that for surgical nursing. The corresponding prizes at the October examination were won by Nurse Mary Ferguson, who was also awarded the Florence Nightingale Western Infirmary prize. Lady Inverclyde congratulated Nurse Ferguson on her triple success, and, in acknowledging a vote of thanks proposed by Mr. David Johnston, her ladyship said she felt very proud to have been asked this year of all years to present the prizes. All were proud of the self-sacrifice shown by our nurses, of whom they could not say enough.

Sir Matthew Arthur, replying to a vote of thanks which was moved by Sir Hector Cameron not only for presiding but also for his great services to the institution, remarked that the work of the Western Infirmary always gave him the greatest pleasure.

The proceedings ended with a visit to the wards, where Christmas gifts were distributed to the patients.

VICTORIA INFIRMARY: NEW YEAR'S DAY MEETING.—The New Year's Day meeting at the Victoria Infirmary was presided over by Sir John Ure Primrose. Among those present were ex-Treasurer Graham, the Rev. J. McNeil Frazer, the Rev. J. Yuill, Mr. John Hutchison, LL.D.; Dr. Ebenezer Duncan, Dr. John Stewart, and Dr. Leask; Messrs. William Primrose, William Gray, D. McKechnie, R. Barton, Dobbie, Miss Campbell, the matron; and Mr. Francis Bisset, the secretary.

The chairman, in his address, dwelt upon the work of the nurses, which he described as lofty in aim, and carried out with a devotion that was emblematic of womanhood in its best form. Throughout the day the nurses were the watchers; in the still hours of night they were silent sentinels, soothing those who suffered from disease, from injury in battle, or from other

causes that laid aside humanity. The advent of war had enlarged the sphere of woman's usefulness. To-day in commercial establishments, in counting-house, and warehouse, women were filling the blank caused by the absence of their brothers at the front. In the munition works women were bearing their part with resolution and capacity. After the war we would have to view many questions from a different standpoint. In his own case he would have to regard the question of the enfranchisement of women in a different aspect, for the devotion they had shown fully entitled them to some direct voice in the management of national affairs. And if, forsaking the extreme methods of the past, they continued, as they had been, such powerful assets of the nation in time of stress and difficulty, the question of women's position must certainly receive calm and careful consideration. He regretted that Lord Rowallan, owing to indifferent health, was not present, and he regretted also that his Lordship's daughter was a prisoner in Serbia. He hoped she would soon be restored to her father. Dr. Macgregor, the Superintendent of the Infirmary, was also laid aside by illness, and he hoped he would soon be restored to health. In conclusion, Sir John referred to the national outlook, in which he saw nothing gloomy. He was a born optimist, and he was convinced that the claims of humanity would be asserted, and that there would be a final subjugation of the horrible, barbaric, and savage in war. If that was achieved by Britain and her faithful Allies we could confidently look forward to a regenerated world, in which our nation would be one of the dominant, but not arrogant, factors in its affairs.

On the motion of Mr. Gray, Sir John was cordially thanked for his address. The pleasant function closed with the singing of the "National Anthem."

STIRLING ROYAL INFIRMARY.—The report submitted on 15th November to the annual meeting of the subscribers to Stirling Royal Infirmary stated that the patients treated during the year had increased from 618 to 907, and that 267 persons had been resident in the Convalescent Home at Chartershall, compared with 198. As a result of the operation of the Insurance Act, the out-patients had decreased from 1,733 to 1,092. With

the completion of the alterations to the operating theatre, the plans for the large extension to the Infirmary had been fully carried out, and with the gift of a complete *x-ray* apparatus by Mr. and Mrs. McGrigor, of Cairnoch, the full equipment of the Infirmary according to the most modern requirements had been obtained. The directors had made a new offer of 60 beds to the War Office for the treatment of wounded soldiers. The maintenance of the Infirmary during the past year cost £3,007 (£590 more than the previous year), while the income amounted to £2,462 (an increase of £735). At the close of last year the general endowment fund stood at £15,620, but it had now increased to £20,239.

WAR HONOURS FOR GLASGOW GRADUATES.—In the list of those mentioned in the latest despatch of Viscount French, and of those whom His Majesty the King has subsequently honoured, occur the names of many medical officers, among whom are a goodly number of graduates of Glasgow University.

Lieutenant-Colonel J. M. Sloan, D.S.O., R.A.M.C., the eldest son of Dr. Samuel Sloan, of Glasgow, has been made Brevet-Colonel. Educated at Allan Glen's School and the High School, he studied medicine at Glasgow University, and took the degrees of M.B., Ch.B. in 1898. He served through the South African War, being shut up in Ladysmith during the siege, and later gaining the D.S.O. while attached to the Scottish Horse. On his return home he was appointed R.A.M.C. Adjutant at Aberdeen. He was on service in India at the outbreak of war, came over with the Indian troops to France, and was mentioned in despatches in February, 1915.

Major J. P. Brown, who has been awarded the D.S.O., is a son of the late Mr. Thomas Brown, Ardmore, Campbeltown. He passed from George Watson's College, Edinburgh, to Glasgow University, where he obtained the degree of M.A. in 1889, and those of M.B., C.M. in 1893. He was house surgeon in Paisley Infirmary before commencing practice in his native town. He served as a civil surgeon throughout the Boer war, attained the rank of Major (R.A.M.C.) in the Territorial Force, and was called up with the 8th Argylls on mobilising in August, 1914. He was attached to the battalion until a few months ago, and is now in command of No. 6 Ambulance Train.

Captain John Downie, M.B., R.A.M.C. (T.F.), who has been awarded the D.S.O., is the eldest son of Mr. Neil Downie, schoolmaster, Dougarie, Arran, where he received his early education. Later he was a scholar at Glasgow High School, and studied at Glasgow University, where he graduated as M.B., Ch.B. in 1900. When called up with the Yorkshire Territorials at the beginning of the war he was engaged in medical practice in Wakefield. His work has throughout lain right in the fighting line, as his duty was to give first-aid to the wounded and superintend their conveyance to the base hospital. Last July he received the Order of St. Anne, 4th Class. He was wounded at Loos, and will shortly be returning to the front from sick leave.

Temporary Lieutenant J. F. Steven, R.A.M.C., awarded the D.S.O. for service in France, studied at Glasgow University, taking the degrees of M.A., B.Sc., and in 1914 those of M.B., Ch.B. A keen Volunteer, he served five years in L (Hillhead) Company of Glasgow Highlanders, in which he gained many prizes for shooting. Prior to the war he was assistant at the University to Professor D. Noël Paton, relinquishing the post to go on active service. He was granted a commission in the 47th Field Ambulance, attached to the 15th Division.

Captain John MacMillan, M.B., R.A.M.C. (T.F.), who has been awarded the Military Cross, graduated at Glasgow University in July, 1908. He was resident physician at Belvidere Fever Hospital from 1909 to 1911, and in 1912 took the Cambridge qualification of D.P.H. Afterwards he was resident physician of the Metropolitan Asylums Board Fever Hospitals, London. Before the war broke out he was Assistant Medical Officer at Willesden, London.

The following officers, in addition to those above noticed, received mention in Viscount French's despatch :—

Surgeon-General R. Porter, of the General Headquarters Staff, is a graduate of Glasgow University, where he took the degrees of M.B., C.M. in 1879.

Captain R. Gale, D.S.O., R.A.M.C., also of the Headquarters staff, studied at Glasgow University, and took the degrees of M.B., Ch.B. in 1909. He was also mentioned in the despatch of 31st May, and was awarded the D.S.O. for his services on that occasion.

Temporary Captain J. R. C. Greenlees, D.S.O., R.A.M.C., a graduate of Cambridge, who has been twice previously mentioned in despatches, and was awarded the D.S.O. last spring, was in practice in Glasgow before the war, and was attached to the staff of the Western Infirmary as dispensary physician. Reference has been made in a former issue to the gallantry which brought him his earlier honours.

Major T. Kay, M.B., C.M.Glasg., F.R.F.P.S., was appointed surgeon to the Glasgow Royal Infirmary and lecturer in clinical surgery to the University shortly before the war, and had barely entered on the discharge of his duties when its outbreak called him to active service. At first attached to the Scots Greys, he is now on duty at one of the base hospitals in France.

Captain J. W. P. Harkness, M.A., M.B., Ch.B. (1914), of the Royal Army Medical Corps (Special Reserve), a brilliant student of the University, graduated in Arts in 1910. He was president of the Students' Union in 1913-14, president of the University Conservative Club in 1912-13, and a member of the Officers' Training Corps, and was on the executive of the Students' Representative Council. He was prominently associated with sports at the University, and was a member of the Athletic Club executive.

Captain A. C. Jebb, M.B., Ch.B., of the R.A.M.C. (Special Reserve), who graduated in medicine in 1914, was a member of the Officers' Training Corps, and was on the executive of the University Medico-Chirurgical Society.

Captain David Mackie, M.B., Ch.B., of the R.A.M.C., also graduated in 1914, and was associated with the Officers' Training Corps, and served on the executive of the Medico-Chirurgical Society.

Captain D. R. King, M.B., Ch.B., of the R.A.M.C., was another graduate in medicine in 1914, and he also served in the Officers' Training Corps.

Captain R. C. Robertson, M.B., Ch.B., R.A.M.C., graduated in medicine in 1914. Before the war he was assistant bacteriologist in the Corporation Public Health Department. He was for nine months attached to the 1st Cameronians, and was wounded towards the end of September.

Captain T. W. Wylie, M.B., Ch.B., R.A.M.C., who graduated

in 1914, was a member of the Officers' Training Corps at Gilmorehill.

Captain N. V. Lothian, M.B., Ch.B. (1912), had previously taken the degree of B.Sc. in 1909. He was a prominent man in his year, gaining many of the prizes. In 1909-10 he was secretary to the Dialectic Society and treasurer of the University Conservative Club.

Captain J. E. Black, R.A.M.C. (Special Reserve), took the degrees of M.B., Ch.B. in 1911.

Captain J. R. M'Curdie, M.B., Ch.B. (1912), R.A.M.C., has been previously mentioned in despatches, and was awarded the Military Cross for gallantry and devotion to duty.

Temporary Captain J. W. M'Leod, R.A.M.C., took the degrees of M.B., Ch.B. in 1908. He was Coats Memorial Scholar and Carnegie Research Scholar, has written several pathological papers of importance, and before the war was assistant lecturer in pathology at Charing Cross Hospital Medical School.

Captain J. W. M'Nee, M.D.Glasg. (M.B. 1909), of the R.A.M.C. (Special Reserve), late M'Cunn Scholar, Carnegie Research Fellow, and Bellahouston Gold Medallist, was before the war assistant to the Professor of Pathology and also for a short time to the Professor of Medicine in Glasgow University. He is the author of many papers of clinico-pathological interest, and while in France has published the results of an investigation into the subject of gas-poisoning.

Captain C. M. Nicol, M.B., Ch.B., R.A.M.C., graduated in medicine in 1909.

Captain A. W. Russell, M.B., Ch.B. (1913), R.A.M.C. (Special Reserve), had after graduation occupied the post of house physician at the Glasgow Royal Infirmary and at the Maternity and Women's Hospital.

Temporary Captain J. F. Smith, M.B., Ch.B., graduated in Arts in 1907 and in medicine in 1911.

Captain M. R. Taylor, M.D. (M.B. 1904), R.A.M.C. (Special Reserve), is a son of the late Rev. Dr. Ross Taylor. He had been attached to the Dispensary staff of the Western Infirmary and the Sick Children's Hospital, and before the war was in practice in Eastbourne.

Captain William Fotheringham, M.B., Ch.B. (1913), R.A.M.C. (Special Reserve), is one of four sons of Dr. Fotheringham, of

Motherwell, who are now serving in the army. He was Scottish golfing champion in 1912, and won the Edward Trophy in 1913. He joined the army a month after war broke out. His brother, Captain James Fotheringham, is also in the R.A.M.C., and his two other brothers are in the Scottish Horse.

Lieutenant T. Strain, M.D. (M.B. 1906), R.A.M.C., son of Mr. William Strain, of Buarbrae, Wishaw, gave himself after graduation to the study of public health, took the D.P.H. of Cambridge in 1908, and before the war was Medical Officer for the Heston and Isleworth Districts of Middlesex. He is the author of many reports and papers on public health subjects.

Lieutenant J. T. Kirkland, M.B., Ch.B. (1909), R.A.M.C., after taking his degree, acted as house surgeon in the Glasgow Royal Infirmary and in the Maternity and Women's Hospital. Before going to France six months ago he was Medical Officer of one of the Glasgow (Service) Battalions of the H.L.I. when stationed in Ayrshire.

Captain M. A. Macdonald, M.B., Ch.B. (1910), R.A.M.C., has been recommended for the French Croix de Guerre in recognition of his services in attending to the wounded in the firing line at Gallipoli.

THE RED CROSS DECORATION.—Among the recipients of the Red Cross Decoration in the recent list of war honours are Miss Melrose and Miss Gregory Smith. Miss Melrose, matron of the Royal Infirmary, has held that position since 1907, and has been connected with the institution for fully thirty years. She is at present also matron of No. 4 Scottish General Hospital at Stobhill, and matron of Merryflatts Hospital. Miss Gregory Smith's appointment as matron of the Western Infirmary, where she received her training, and from which she went as assistant matron to the Dumfries and Galloway Royal Infirmary, dates from 1906. She is at present principal matron of No. 3 Scottish General Hospital. Both ladies, in addition to the exacting labour of their responsible positions in connection with large civilian hospitals, have thus given themselves generously and unsparingly to war work, for which the honour that has fallen to them will be recognised as a fitting reward. The profession at the head of which they stand is represented at the front and in military hospitals at home by many Glasgow

nurses. That they have proved themselves more than equal to their opportunities for devoted service is shown by the large number of their names which are mentioned in Viscount French's last despatch.

RED CROSS SOCIETY, SCOTTISH BRANCH.—Our last notice of the work of the Scottish Branch brought its record to the end of September, while a separate article in the same issue gave an account of the opening of the Scottish National Red Cross Hospital at Bellahouston on 14th October. In the middle of October a report was issued upon the transport work in France, which had been put to a severe strain during the week of the great advance in Flanders, the ambulances at Rouen having carried no fewer than 11,584 officers, orderlies, and patients. The approximate mileage covered was 19,039 miles, and the removal of wounded was effected with great regularity and despatch. At this time a further donation of £2,067, 4s. 6d. was received from the Scottish Licensed Trade towards the Motor Ambulance Fund. For Bellahouston Hospital £2,517, 16s. was received from the Ayrshire Block Committee, and £2,500 from the Renfrewshire Branch. The staff and employees of Nobels Company, Ardeer, sent £600 to provide a motor launch, and the Rangers Football Club £120, 9s. 8d. to endow two beds in Bellahouston Hospital. The cinematograph industry reported that it had collected £10,000 towards an intended sum of £30,000 for a complete motor ambulance convoy of 50 cars.

At a social meeting in White Street Congregational Church, Govan, on 19th October, Sir George Beatson reviewed the work of the Branch, mentioning that a convoy of 66 motor ambulances, representing between £30,000 and £40,000, was handed over to the War Office as their property. As to the hospital at Rouen, they hoped very soon to have the beds there increased in number from 250 to 300. They had established throughout the counties and in Glasgow about 5,000 beds, of which Glasgow had provided 1,200. At present the Branch was engaged chiefly with the sending out to the Dardanelles of seven motor ambulance launches, each holding 11 or 12 equipped cots. Three of the launches were leaving that week, and the four others would be going the following week.

Subscriptions received during the week included £898, 10s. from

the women of Trinidad and Tobago, £715, 14s. 1d. from church collections in the Roman Catholic Archdiocese of Glasgow, £150 from Mrs. Lennox Beattie, Red Cross Restaurant, Edinburgh, for the purchase of an x-ray apparatus for Bellahouston Hospital, and £495, 16s. 4d. from a sale and collection in the island of Islay.

The board of directors of the Caledonian Railway Company announced that the exhibition of the ambulance train which has been constructed by the company on the order of the War Office for service in France had resulted in £13,255 being available for distribution amongst the several local branches of the Red Cross Society, and that this amount would be allocated and paid over to each local branch in exact relation to the receipts and expenditure at each place.

Towards the end of the month the motor ambulance committee of the iron, steel, and ironmongery trades of Scotland issued a statement showing that they had supplied four motor ambulances to the Scottish Branch, and named a bed in one of its hospitals. The subscriptions amounted to over £2,000, and included contributions from all classes of the trades.

The Red Cross Flag Day held throughout Scotland on 23rd October was marred by unfavourable weather, but resulted, nevertheless, in the collection of a sum of about £3,000 from Glasgow, while in the West of Scotland £158 was contributed from Ayr, £120 from Helensburgh, £160 from Johnstone, £124 from Kilmacolm, £63 from Largs, £113 from Airdrie, £122 from Ardrossan, and £117 from Hamilton.

The Scottish Bowling Association intimated a contribution of £4,392, 9s. 5d., subscribed by constituent clubs for the purchase of eight motor ambulances.

On 27th October the Scottish Licensed Trade Association—at a ceremony in front of the City Chambers, Edinburgh—presented the Branch with six motor ambulances. The presentation was made by Lord Provost Inches, and Sir Hector Cameron, who accepted it in the absence of the president of the Branch, said that he esteemed it a great honour to be asked to accept this gift on behalf of the Scottish Branch of the British Red Cross Society, and to express on their behalf their most grateful thanks to the generous donors. It would, he thought, be a mistake in estimating the value of this gift to think that the only function of this mode of transport was to increase the

comfort of the wounded or the convenience of those who attended them. By this new form of transport many lives were saved and limbs preserved which otherwise would be sacrificed. The number of cars purchased by the Scottish Branch was 180. In addition they had had presented to them 65, making altogether 245 cars. In France there were 171 and in Scotland 74. The money raised for ambulance work amounted to £89,000. At Rouen in one day alone 2,549 men were carried, the total for that week being about 11,500, that being the week following the recent movement. Their fleet required constant reinforcement, because in addition to the natural wear and tear every now and again cars were destroyed by the fire of the enemy.

At the end of the month the Headquarters Organising Clothing Committee issued a fresh appeal for warm hospital clothing, and also for woollen helmets and mufflers, and suggested that work parties should leave the making of bandages and surgical dressings to the War Surgical Supply Depôts, already established in the principal towns and counties. The honorary treasurer of the Scottish Women's Hospital for Foreign Service announced that during the past week she had received the following donations towards the funds of the hospitals:—Glasgow and West of Scotland Sub-Committee, £444, 15s. 10d.; Scottish Teachers' Fund, £400; Miss C. Knox Crawford for "nurses" bed (second donation), £51, 7s. 9d.; Leven W.S.S. (second year of bed), £50; employees, Messrs. Glenfield and Kennedy (three weekly instalments), £48, 9s. 10d.

It was intimated at this time that with the consent of the Central Office of the British Red Cross Society, recognition had been granted by the War Office to the Scottish Branch of the British Red Cross Society as the central organisation for co-ordinating and carrying on Red Cross work in Scotland, and to act as the Central Red Cross Depôt for supplying standardised patterns to county Red Cross committees, both for hospital comforts and surgical supplies. Under this arrangement the Director-General of Voluntary Organisations would communicate direct with the Scottish Branch upon all points, and make his arrangements with them for Red Cross requisitions. This recognition of the Scottish Red Cross Branch in no way interfered with the War Office scheme for co-ordinating

and regulating in Scotland the voluntary work organisations established to provide comforts for the fighting troops, as under the Geneva Convention the Red Cross could take no share in this work, but must confine itself to the sick and wounded.

Early in November it was intimated that the total sum collected in Scottish Sunday Schools by the children's war effort from July to the first week in October was £512, 12s. 9d. A statement upon the general work of the Branch showed that the funds in hand were close upon £300,000, while subscriptions were still coming in regularly. As the work of the Society had of late increased, even more extensive calls were probable in the future, and the need for public generosity would rather increase than diminish. The total sum realised throughout Scotland on the recent Red Cross flag day was expected to amount to nearly £16,000.

It was intimated on 13th November that Her Royal Highness Princess Louise, who had consented to allow one of the beds in the Serbian unit of the Scottish Women's Hospitals to be named after her, had presented the unit with an ambulance, which was then complete and ready to be despatched to its destination.

On the 20th an appeal was made by the Headquarters Organising Clothing Committee for flannel lumbago belts for the use of the large numbers of cases of enteric and dysentery returning from the Dardanelles. A free gift auction sale, held on the 24th in the Glasgow Cattle Market under the auspices of the Contractors', Horse Owners', and Allied Trades Association, realised £320, to be added to a sum of £400 already in hand for the provision of a motor ambulance. On the 27th, at a meeting of the committee of the Scottish Drapery and Textile Red Cross Fund, it was reported that up to date a sum of £1,637 had been received from the trade, which had thus spontaneously anticipated the general appeal to be issued in the following week.

December opened with the announcement that Her Royal Highness Princess Louise had agreed to give her patronage to the Hôpital de l'Écosse, rue de la Chaise, Paris, which had been supported since September by the Scottish Branch. On 2nd December was published the following letter from Colonel Sir Edward Ward, Bart., K.C.B., K.C.V.O., Director-General of Voluntary Organisations, to the Hon. Arthur Stanley, M.V.O.,

M.P., chairman of the Joint War Committee of the British Red Cross Society and the Order of St. John of Jerusalem in England:—

OFFICE OF THE DIRECTOR-GENERAL OF VOLUNTARY ORGANISATIONS,
SCOTLAND HOUSE, NEW SCOTLAND YARD,
LONDON, S.W., *November 29, 1915.*

MY DEAR STANLEY,—In order to define the exact position of the British Red Cross Society and the Order of St. John in connection with this organisation, it is advisable to make the following points clear:—

This organisation will deal with (1) combatants, *i.e.*, men at the front and at home; (2) military hospitals.

Auxiliary and voluntary hospitals (Red Cross, St. John, V.A.D., etc.) will be provided for as hitherto by the British Red Cross Society and the Order of St. John. These two societies will also continue to give to the military hospitals at home and abroad, on requisition by the Director-General of Voluntary Organisations, such extra comforts and luxuries as may be required by them. Every worker who does three months work under the Red Cross will, subject to the conditions laid down by the Director General of Voluntary Organisations, receive the voluntary workers' badge, which signifies that the wearer is a regular voluntary worker under the Director-General of Voluntary Organisations. The names of all workers entitled to the badge will be transmitted to the Director-General through the central office of the joint committee of the British Red Cross and St. John. I hope that this makes the situation perfectly clear. As I have told you on all occasions, and every publication bears it out, there is no intention whatever of interfering with the valuable work these two societies are doing in connection with hospital services, and the existing arrangements should not be disturbed.—Yours, etc.,

E. W. D. WARD.

The Edinburgh Red Cross sale began upon 1st December, and in the five days of its continuance realised £5,476, 18s. 10d., exclusive of cash contributions. The Glasgow sale, which took place in the Trades Hall, was preceded by a three days' exhibition of the gifts to be sold, opened on 6th December by the Duchess of Montrose, Sir John Stirling Maxwell being in the chair. The Duchess, in opening the exhibition, dwelt on the interesting and valuable character of the gifts and the widespread work of the Branch, and expressed her hope that the

sale would call forth a keen competition. The sale opened on the 9th, and the first day's auction realised £1,078. Competition, however, was hardly maintained at this level, and the total for the eleven days' sale amounted to £6,091. This was to some extent augmented by the proceeds from the sale of motor cars, disposed of privately, and by a number of contributions made by cheque, the grand total reaching rather over £7,000. The first day of a two days' free gift sale held at Lanark at the same time realised £2,634.

On 24th December the Headquarters Organising Clothing Committee gratefully acknowledged the gift of over 1,500 garments presented to Lady Stirling Maxwell by the Women's Auxiliary to the Baptist Union of Scotland. The sum collected during the year by the Red Cross collecting boxes was announced as £3,818, 7s. 6d. The executive of the Drapery and Textile Trade Red Cross Fund reported that up to date the sum of £2,840 had been subscribed to the fund, and that subscriptions were still coming in freely.

On 31st December it was announced that the sum of over £5,600 had been obtained as the result of sales at Lanark, Coatbridge, and Hamilton, and it was hoped that the last day of the Hamilton sale would bring the total well over £6,000.

In a summary of its work for the year the Branch stated that they were maintaining the Scottish Hospital of 270 beds at Rouen, where, up to 19th December, the number of patients treated was 4,324. Another hospital in Paris, named l'Hôpital de l'Écosse, and consisting of 150 beds, had been recently taken over by the Scottish Branch, and was being devoted to the treatment of wounded French soldiers. They had also granted £5,000 to the Anglo-Russian Hospital in Petrograd, a sum which would maintain a Scottish ward of 50 beds for one year. In regard to hospital accommodation at home it would suffice to recall that the Branch were administering and maintaining in Glasgow the Springburn and Woodside Hospitals, with 500 beds in all, and that they opened in October their Scottish National Hospital with 700 beds at Bellahouston Park. In addition to these central hospitals, 149 auxiliary hospitals had been provided throughout Scotland by county branches of the Red Cross. Substantial assistance had been given to the Navy in the form of a hospital ship for use in the Mediterranean, as the

result of Red Cross flag day collections in Scotland which realised over £20,000. The ship had been named St. Margaret of Scotland, and would be equipped on the Clyde.

In regard to transport for the sick and wounded, the Scottish Red Cross had furnished 174 motor ambulances for use on the Continent, including 60 presented by the Branch to the War Office. At home between 50 and 60 ambulances had been employed in transporting sick and wounded to and from hospitals to railway stations. These waggons up to 5th December carried 103,815 patients and orderlies. The Branch had also undertaken the entire ambulance transport work at Rouen, which was one of the principal bases of the British Expeditionary Force. Up to 5th December the Rouen unit carried 87,684 patients and orderlies. The French Minister of War recently accepted from the Scottish Branch an offer of a motor ambulance unit of 15 waggons with Scottish personnel for work in the French lines, and the offer of another unit for service at Salonica had also been made.

Among the other features of the Branch's operations during the year were the following:—The provision of rest rooms at the principal railway stations, where invalid soldiers could obtain hot soup or have their wounds dressed before journeying home; the collection of almost half a million garments and comforts for the sick and wounded at home and abroad, and the establishment of central and branch egg and game collection depôts throughout Scotland to provide fresh eggs and game for the sick and wounded in all the Scottish hospitals. Excellent work had been done in hospitals by members of the Voluntary Aid Detachments. After transport, the most pressing need during the winter would be warm clothing for the sick and wounded, and work parties could not do a greater service to hospitals than by supplying these needs.

REVIEWS.

Health in the Camp: A Talk to Soldiers. By H. R. KENWOOD, Temporary Lieutenant-Colonel, R.A.M.C. London: H. K. Lewis & Co., Limited. 1915.

THIS little pamphlet, from the pen of the Professor of Hygiene and Public Health in the University of London, is designed to serve two very useful purposes. The first is to instruct the soldier in the reasons which make his strict observance of the regulations for camp sanitation so necessary; and the second is to benefit the funds of the Soldiers' and Sailors' Families Association by the profits of its sale. No better instruction could be given than that which it affords; it is so clear and so reasonable that it can be understood without any previous training, and that its principles must at once command the reader's assent. Its price—threepence—is so small that it is within the reach of everybody; and medical officers would greatly facilitate their own sanitary labours by calling it to the attention of their men. It only needs to be known to command a wide circulation.

The Clinical Anatomy of the Gastro-Intestinal Tract. By T. WINGATE TODD, M.B., F.R.C.S. Manchester: The University Press. London: Longmans, Green & Co. 1915.

THIS volume embodies the substance of a series of lectures given in the Western Reserve University of Cleveland, where Mr. Wingate Todd is now Professor of Anatomy, and it is intended to give an outline of recent work to those to whom the elementary anatomy of the gastro-intestinal tract is already known. It fulfils its object very successfully, and will be found of great value from the clinical point of view. The application

of radiography has thrown much light on the position of the stomach both in health and disease, and the old notion that it lies like a transverse bag across the epigastrium has been finally displaced. But many clinicians are not yet fully informed of the variations in shape and in position which the normal stomach may assume, and to these the book will bring an enlargement of knowledge useful for therapeutic ends. They will find with less pleasure that the nomenclature has undergone considerable changes, but that is the necessary consequence of more accurate knowledge. There would seem, however, to be no adequate reason for the retention in an English text-book published in 1915 of the term *Magenblase*, for which "gastric cap" or "gastric vesicle" would form a native equivalent. The section devoted to the peritoneum in general, the œsophagus, and the stomach, constitutes the first half of the book. The remainder deals very fully with the intestine from duodenum to rectum, and more briefly with the liver, gall-bladder, and pancreas. An extensive bibliography adds, for those who wish to pursue the subject further, to the usefulness of a volume which should be welcome alike to anatomists and to the practising surgeon and physician.

Nerve Injuries and Shock. By WILFRED HARRIS, M.D., F.R.C.P.
Oxford War Primers. London: Henry Frowde and Hodder
& Stoughton. 1915.

THE excellent series of War Primers published at the Oxford Press would have been incomplete without the inclusion of a volume dealing with the multiform nerve injuries and shock, of which so many puzzling examples have been afforded in the course of the war. The subject is a wide one, and it required a writer of the experience of Dr. Harris successfully to compress its essentials into so small a volume. It may be said at once that he has performed his task in an admirable manner and without disproportion. Many, no doubt, would wish to see the lesion in which they are particularly interested—spinal concussion, for example—handled at greater length; but few will not admit that their subject receives adequate consideration,

and that their gain would have been another's loss. It is particularly in connection with treatment, as it ought to be in a practical manual, that Dr. Harris's little book contains many suggestions of great value, and those who read and profit by it will find their therapeutic efficiency materially increased.

Cerebro-Spinal Fever. By T. J. HORDER, M.D. Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. 1915.

THIS little monograph on cerebro-spinal fever will be found exceedingly useful, not only to those in charge of cases of the disease as it occurs in military hospitals, but also to the civilian practitioner who may have to deal with it in its sporadic form. In the limited compass of the volume will be found, very readably presented, all that it is essential to know with regard to the etiology, diagnosis, and treatment of the disease. The various clinical types which it may assume are clearly differentiated, the symptomatology receives full consideration, and the reader will find much help in difficult cases from the discussion of diagnostic problems. Special prominence is rightly given to lumbar puncture, an operation so necessary both for diagnosis and treatment, and the chapter devoted to the method of performing it is so clear, detailed, and practical as to make the path even of the neophyte comparatively easy. The book appears at an opportune time, and ought to command a wide circulation.

Guy's Hospital Reports. Edited by F. J. STEWARD, M.S., and HERBERT FRENCH, M.D. Vol. LXVIII. London: J. & A. Churchill. 1914.

THE present volume of *Guy's Hospital Reports*, nominally for 1914, has been delayed in publication for nearly a year owing to the exigencies of the war, and in a prefatory note the editors express their regrets and their hope that the annual issue of the *Reports* may not be interrupted. For the same reason,

doubtless, it forms a somewhat thinner volume than its predecessors; but the papers which it contains are not inferior in interest to those of former years. It opens with an appreciation of the late Mr. Bryant, sympathetically written by Mr. Golding-Bird. Born in pre-antiseptic days, Bryant, it would seem, never fully adopted the Listerian system, but he nevertheless accomplished much in abdominal surgery, and particularly in ovariectomy, through the rapidity and skilfulness of his operative methods and his punctilious attention to cleanliness. As a lecturer he was clear and methodical, drawing largely on his own experience, and he had the art of so describing a case as to make his hearers feel that they saw it before them. He was a voluminous and accurate writer, and has contributed much to the progress of surgical science: and the enormous popularity of his *Practice of Surgery* is the best witness to those qualities which made him so distinguished a teacher. Mr. Higgins contributes a brightly written paper on "Charlatans and 'miracles,'" in which he exposes the methods of the ophthalmic quack, and gives an account of some of his own cases of sudden cure of hysterical or feigned ocular troubles, cases which, had they been exploited by a quack, would have brought him the reputation of a miracle-worker. Mr. Clement Lucas gives an account of a hitherto unrecorded case of fracture of the base of the skull, with a *post-mortem* examination by the late Dr. Moxon; and this is followed by a joint paper from Dr. W. Johnson and Mr. W. M. Mollison on a case of glioma of the left cerebello-pontine angle. Mr. Eason and Dr. Johnson describe very fully four cases of pituitary tumour, two recent and two from specimens in the museum. Evidence of dyspituitarism and of ocular affection was present in both the recent cases, and in these an examination of the optic tracts and of the cortical visual fibres was made. The only demonstrable change following the lesion of the chiasma was in both instances a degeneration of the optic tracts. There was no degeneration posterior to the primary optic ganglia. This would seem to refute "the statement that certain optic fibres reach the occipital cortex without relaying in the cell stations in the primary optic ganglia." "The advantage of physical games over set exercise" is the title of a brief paper by Mr. M. S. Pembrey, very appropriate at the present time as tending

to promote the reaction from formalism of which some happy traces begin to be apparent in our educational methods. Mr. E. J. Cooke and Dr. Mutch write upon the presence of urobilinuria in heart failure, their paper being based upon a careful study of twenty-one cases. It would appear that urobilinuria is frequently present in the absence of jaundice, and that its degree is roughly a measure of the degree of failure of the heart. The pigmentation of the skin so common in chronic heart failure is due, however, not to urobilin but to melanin. Messrs. Pembrey and Ryffel contribute a valuable paper on the clinical significance of respiratory variations, and Dr. R. A. Chisholm gives an interesting review of recent work done upon experimental nephritis. Although the main problems of nephritis—chloride retention, uræmia, the seat of excretion of the various urinary solids—have so far received no solution from such work, it has proved its value, at least, in negating certain current theories. It has shown, for instance, that the rise in blood-pressure and the cardiac hypertrophy are probably not due to the circulation of renal poisons in the blood, but are compensatory to the decreased functional capacity of the kidney, and it has contributed to upset the notion that contracted kidney is a condition consequent upon acute nephritis. A brief paper by Mr. Lindsay Locke upon the *x*-ray appearances of some bony injuries caused by modern projectiles is remarkable for its numerous and excellent illustrations; and the volume closes with an account by Mr. J. W. Eyre of the new laboratories at the bacteriological department of Guy's Hospital.

The Ductless Glandular Diseases. By WILHELM FALTA; translated and edited by MILTON K. MEYERS, M.D., with a Foreword by A. E. GARROD, M.D., F.R.C.P., F.R.S. Philadelphia: P. Blakiston's Sons & Co. 1915.

THE work of Professor Falta on the ductless glands is widely known to those who are engaged in research upon the subject. As Dr. Garrod points out in his "foreword," he has made important contributions to our knowledge of experimental

chemistry, and his qualifications for dealing with the diseases of the ductless glands are those both of a research worker and of a clinician. A volume by a writer so qualified has for long been wanted, since most of the monographs upon the subject have been written by research workers to whom its clinical aspects have occupied a somewhat subordinate position. From Professor Falta's hands has come a treatise in which both sides receive a proportionate attention and an exhaustive study. Its usefulness for English readers is increased by the addenda embodying for the most part the views of English and American writers which the translator and editor, Dr. Meyers, has appended to almost every chapter.

Professor Falta is a believer in the view that the symptoms of diseases of the ductless glands are due either to diminution or to excess of their internal secretion, and not to alterations in the character of the secretion. He devotes much argument to refuting the opposite contention, and with considerable success. The question of interaction between the various members of the hormonopoietic system receives full attention at his hands, and he discusses in an interesting fashion the comparatively new conception of pluriglandular disease. His attitude in this matter is conservative, for he does not consider it right to talk of pluriglandular affections when one ductless gland can be shown to have suffered first and principally, and others have merely become secondarily involved in the same pathological process. He would reserve the term for those cases in which the morbid process involves the whole ductless glandular system, or at least a large part of it, with some uniformity. The relations of the nervous system to the regulation of internal secretion are fully considered, especially in their bearing upon the pathogenesis of diabetes. From the clinician's point of view the great merits of the book are the clearness with which the various groups of symptom-complexes are differentiated, and the attention given to the important subject of treatment. The illustrations are abundant and excellent, and the type is clear and readable. Unfortunately Dr. Meyers' translation suffers from over-literality; he has been so anxious to give his author's exact shade of meaning that he has brought over not only his words but his idiom. "Also in the female sex may in certain cases a primary hypergenitalism be demonstrated"

(p. 426) is not English; as we read it we hear the German words and see once more the German lecture-room; and there are too many sentences built upon a similar model. But the reader who is undeterred by this defect will find it the only obstacle to his enjoyment of a most instructive and authoritative work.

Encyclopædia Medica. Second Edition, under the general editorship of J. W. BALLANTYNE, M.D., F.R.C.P.E. Volume I: Abattoirs to Asphyxia. Edinburgh and London: W. Green & Son. 1915.

IN the lapse of fifteen years since the publication of the first edition of the *Encyclopædia Medica* much change has taken place in many branches of medicine. Views then current have in many instances been modified or abandoned, additional knowledge has been gained in the light of recent research, and in some instances diseases or morbid conditions have sprung into prominence to which little or no attention had been given fifteen years ago. These changes are all reflected in the present volume of the second edition. Constructed on the same lines as its predecessor, its considerably increased size speaks of the additions to our knowledge in the interval. Its articles have all undergone revision, most of them at the hands of the original authors. In some of them much alteration and addition has been required, in others but little, but in all cases they have been brought into thorough correspondence with the present state of medical science. Several entirely new articles have been added, and among these the most important are those on the acute abdomen, abdominal section, acidosis, acromegaly (including the surgical treatment of the disease), adenoids, amœbiasis, anchylostomiasis, antenatal pathology and hygiene, and asepsis in midwifery. A feature of the volume is the section devoted, under the heading of anatomy, to the Basle nomenclature. While the customary anatomical nomenclature has been retained in the text of the various medical and surgical articles, it has been recognised that students trained in the new terminology may within a short time have difficulty in identifying under their older names some of the structures

referred to; and hence a table is given in which are set forth in parallel columns the present English name, the Latin term as fixed at Basle, and the suggested English equivalent. The table adds nearly a hundred pages to the size of the volume, but it also adds greatly to its value, and the need for it will be more and more felt as the younger generation supersedes the older.

The scope of the *Encyclopædia Medica* is well known to a wide public from the success of the former edition. A comparison of any of the chief articles in the first volume with its predecessor will show that it represents the present position of medicine or of surgery as practically and exhaustively as did the earlier exposition of the subject fifteen years ago. No pains have been spared in the production of the book: the type is clear; the illustrations and plates are well chosen and excellently reproduced; and though of considerable size the volume is not unduly heavy. It can be cordially recommended to all who are in search of an encyclopædia at once modern and complete.

Human Derelicts: Medico-Sociological Studies for Teachers of Religion and Social Workers. Edited by T. N. KELYNACK, M.D. London: Charles H. Kelly. 1914.

THIS volume, which consists of a series of studies by medical experts, deals with those classes of defectives, delinquents, and dependants to which belong the largest number of human derelicts, and is intended to present to social workers a concise statement of the facts and their appropriate remedies in so far as these are known. Each type of derelict has his own expert; thus, to mention only a few among the many writers and subjects, Dr. Devon deals with the criminal derelict, Dr. Claye Shaw with the lunatic, Dr. Percival Taylor with the idiot, Dr. Mary Gordon with the inebriate woman, Dr. Basil Price with the inebriate man, Dr. Helen Wilson with the prostitute, and Dr. Saleeby with eugenics in relation to dereliction. The late Sir Thomas Clouston contributes a "foreword."

Each article is followed by a brief but useful bibliography, and as each is written by an acknowledged authority, it contains,

as might be expected, a good deal of helpful information. But the book is an octavo volume of 337 pages of text; the type is of a comfortable size for easy reading; each article is followed by a blank page, and preceded by a double page, blank but for the title and the author's name and qualifications; and in this way the text is reduced by nearly 50 pages. There are seventeen articles, dealing in less than 300 pages with the criminal, the imbecile, the drunkard, the sexually vicious, the blind, and the deaf. It is evident that only the fringe of these large subjects can be handled in so small a space, and that while the book may profit the beginner, it is not likely to be of much use to the experienced teacher of religion or social worker. If these from their long contact with humanity do not know by heart—and not by mind—more than it can teach them, their work will be labour in vain.

St. Bartholomew's Hospital Reports. Vol. L, Part I. Edited by F. W. ANDREWES, W. M. ECCLES, G. E. GASK, W. D. HARMER, H. THURSFIELD, and H. WILLIAMSON. London: Smith, Elder & Co. 1914.

WITH the issue of the first part of the fiftieth volume, the editors of the *St. Bartholomew's Hospital Reports* inaugurate a new departure. It is intended that the *Reports* shall in future be published in three parts each year, the first two parts containing scientific and clinical papers, the last the statistics of the hospital. The part before us opens with an appreciative notice of the late Mr. Bruce Clarke from the pen of Mr. C. B. Lockwood, and the remainder of it is occupied by papers of medical as opposed to surgical interest. These are five in number. The first, on splenomegaly and splenectomy, by Drs. Thursfield and Gow, is chiefly occupied with a review of the cases in which splenectomy has been performed during the past five years. The authors have collected seventy-four cases, with a mortality-rate of 12·16 per cent. They consider that the operation is curative in the early stages of splenic anæmia, and gives brilliant results in congenital and acquired acholuric jaundice, that it may be followed by temporary improvement in pernicious anæmia, and it is to be recommended in the pseudoleukæmia of

infants if the disease has continued without improvement for several months. The paper is followed by a bibliography and a tabular analysis of cases.

Drs. Garrod and Evans write upon a case of sclerosis of the arch of the aorta, causing obliteration of the pulses in the neck and arms; Mr. Malcolm Donaldson on the influence of pregnancy and labour on the blood-pressure, which he shows not to be raised in pregnancy and not to fall immediately after labour, as has been hitherto asserted. Mr. Anthony Feiling contributes observations on a case of polioencephalomyelitis, and Dr. H. L. Whale a paper on salvarsan in the treatment of syphilis of the upper air-passages and ears.

As will be seen, the volume contains material of much interest to the clinician.

Treatment of Neurasthenia. By Dr. PAUL HARTENBERG.
Translated by ERNEST PLAYFAIR, M.B., M.R.C.P. London:
Henry Frowde and Hodder & Stoughton. 1914.

ONE will find in the present volume much helpful guidance in the diagnosis and treatment of what must be considered one of the trials of medical practice.

The author has definite views on his subject, and has the ability to express them in a clear and logical manner. He takes pains to define clearly what he considers should be included under the term neurasthenia, and discusses various psychonervous affections—such as melancholia, hypochondriasis, &c.—which should be distinguished from it.

An interesting chapter deals with the manner in which the patient should be examined. Lengthy consideration is given to the various exciting causes of neurasthenia, while at the same time he insists that “the only and true specific cause is the nervous predisposition of the patient, the diminution of resistance on the part of his nervous system against all harmful agents which permit its weakening and the fall into depression.”

Treatment is discussed in a very lucid and comprehensive manner, occupying the greater part of the book. Separate chapters deal with the treatment of the causative factors, the physical and mental asthenia, and special symptoms.

An index would have added to the value of the book, but apart from that we consider it one of the best books we have read on the subject, and its convenient size should secure for it a ready sale.

Medical and Surgical Reports of the Episcopal Hospital, Philadelphia. Vol. II. Philadelphia: W. J. Dornan. 1914.

THIS volume contains an account of the work done in the Episcopal Hospital, Philadelphia, during the year, both as statistical accounts of various departments and their work, and as longer papers on the more interesting cases. While most of these papers deal with surgical conditions medicine is not neglected, and such specialties as ophthalmology and aural diseases are represented. Many of the cases are of interest, and show careful study and handling on the part of the surgeons and physicians of the hospital. Among interesting papers may be mentioned that on *x-ray* diagnosis in abdominal disease, and one dealing with the investigation of the functional activity of the kidneys.

The book will well repay a perusal by anyone wishing either to add to a collection of case-records or to study the working of an active and up-to-date hospital.

Nervous and Mental Diseases. Edited by HUGH T. PATRICK, M.D., and P. BASSOE, M.D. Practical Medicine Series, 1914. Vol. X. Chicago: The Year Book Publishers.

THIS volume will be found an excellent summary and digest of recent work on the subject of which it treats. Two-thirds of it are concerned with affections of the nervous system, and the remainder with mental disorders. Among the various diseases in which recent investigations have led to changes in treatment, syphilitic affections of the nervous system occupy a place of much importance, and the collection in one volume of abstracts of the papers of different workers on intravenous and intrathecal injections of salvarsan and salvarsanised serum

affords an opportunity of gauging the merits of the treatment. Its results cannot be said to be encouraging. No impartial judge, on going over the body of evidence here collected, would be able to say that there was a notably larger number of cases of cure or improvement, or that the improvement in individual cases was materially greater than with the older methods of treatment, and any such judge would have to admit that the method of intrathecal injections had occasionally led to very unfortunate consequences. It is one of the services of books of this class that they enable their readers to form a more considered opinion of the worth of new methods than a contemporary perusal of individual papers.

Text-Book of Massage and Remedial Gymnastics. By L. L. DESPARD. Second Edition. London: Henry Frowde and Hodder & Stoughton. 1914.

THE second edition of Miss Despard's work on massage has appeared within three years after the first, and is certain to earn a no less favourable reception. It has been considerably enlarged by amplification of the chapter on the skeleton, adoption of the Swedish classification of massage movements, and insertion of an additional chapter on remedial gymnastics. All sections of the book have been thoroughly revised, and it entirely justifies its author's claim for it as both a useful text-book and a book of reference for students of massage. Those who master it will have at their command all that can be learned from books of the theory and practice of their art.

The Practitioner's Guide to Clinical Research. London: The Clinical Research Association. 1914.

THIS manual, issued by the Clinical Research Association, is intended to meet a demand for a concise, up-to-date work dealing with the present position of laboratory investigations in relation to clinical medicine and surgery, and explaining the

class of case in which such investigation may be of use, the methods of collecting and forwarding specimens, and the deductions to be drawn from the results. It is divided into sections devoted to the different fluids and tissues of the body, and under each heading the various necessary investigations are described in alphabetical order. To meet cases in which the practitioner may be uncertain as to the direction his investigation should take, a very full alphabetical index of morbid conditions refers him to the section containing the information required. The book will be found of material assistance in the utilisation of the facilities for diagnosis which a well-equipped laboratory affords.

General Medicine. Edited by FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, A.M., M.D. The Practical Medicine Series. Vols. I and VI. Chicago: The Year Book Publishers. 1914.

FOR a survey of the newer work in the many departments of internal medicine we find the Practical Medicine Series exceedingly useful. The general arrangement of the volumes is the same as last year, and it is scarcely possible to select any parts for special comment, as the work itself is, to all intents and purposes, a review.

For those who have not the opportunity or the time to peruse many medical periodicals, some such series as this should prove a very serviceable addition to the library.

Simple Methods of Radiographic Localisation. By THOMAS RANKINE. Edinburgh: W. Green & Sons, Limited. 1915.

DR. RANKINE in this short monograph gives a table which he constructed during his tenure of office as honorary radiographer at a base hospital in France, and by which with nothing more than a pair of compasses, localisation of foreign bodies in the tissues can be made from plates in a few seconds. The measurement is got by taking two skiagrams of the object from different

positions. This may be done with both on one plate or each on a separate plate as in the production of stereoscopic pictures. The distance between the point of origin of the rays and the plate being known, and the lateral displacement of the tube between the two exposures also being known, the displacement of the shadow gives a means of calculating the depth of the body casting it. The chart is worked out for three different target-plate distances, viz., 50, 60, and 70 cm. or inches, and for two separate tube displacement distances, viz., six and ten. All one has to do is to take the distance between the images and apply this to the chart which reads off directly the depth of the foreign body. The method is simple and accurate, and saves all calculations.

Physiologie Normale et Pathologique des Reins. Par L. LAMBARD. Paris: F. Gittler. 1914.

THIS book is a study of the physiology of the kidneys, and incidentally of the pathological differentiation of the various forms of nephritis by means of the rate of excretion of certain of the normal products—for example, water, urea, and sodium chloride.

The author himself admits that his discussion of the physiology of the kidneys is perfunctory. He makes little or no attempt to deal with the abundant literature in this field, but confines himself almost entirely to a discussion of the results which have been obtained by himself and his co-workers in Paris. This failing, it may be remarked, distinguishes the book throughout. Still the volume contains a great deal of interesting matter, particularly with reference to the rate at which various normal excretory products are turned out in the urine. The author lays a great deal of stress on the maximal concentrations of the various substances in the urine and the serum. His summary of the relation of the amount of renal parenchyma to the rate of secretion is very brief. He concludes his physiological section with a short discussion of the rôle of the nervous system on renal secretion, and an equally brief reference to the normal histology of the kidney.

In his pathological section he applies this physiological information to the study and classification of nephritis, discarding entirely the old-fashioned histological classification of renal affections. He has collected much valuable information, which he proposes to utilise for prognostic purposes.

He concludes his work with an interesting, although very limited, discussion of the relation of renal troubles to other functions of the body.

Die moderne Therapie der Gonorrhöe beim Manne: ein Leit-faden für Studierende und Ärzte. By Professor von Dr. PAUL ASCH. Bonn: A. Marcus and E. Weber's Verlag. 1914.

THIS is a series of brief and practical lectures on the modern methods of treatment of gonorrhœa and its complications. It makes no claim to be a complete account of contemporary knowledge in the domain of gonorrhœal therapy, its purpose being rather the discussion of those methods which have best served the author in the course of his fifteen years' experience. A book written on these lines gains in freshness of handling what it loses in completeness, though, in view of the number of procedures here critically discussed, one is disposed to wonder what it is that has been left out. The volume will prove very useful to anyone who cares to read German at the present time, and who is able to procure a copy.

General Surgery. Edited by JOHN B. MURPHY, A.M., M.D., LL.D. The Practical Medicine Series. Vol. II. Chicago: The Year Book Publishers. 1914.

VOLUME II of the "Practical Medicine Series" deals with general surgery, and that subject is still under the able editorship of Dr. John B. Murphy. If one bears in mind that the volume is the review merely of the year's work in surgery, that it is concerned with all that is new or interesting, and that the process of winnowing wheat from chaff is not always complete, then the book will be found well worthy of possession

and of frequent consultation. As in former years, the greatest number of references is to American journals, but French, German, and English surgical magazines supply a goodly share. The editor's surgical clinics are a never-failing spring of surgical stories. We think that this book meets a distinct need in supplying the wants of the surgeon who must make himself acquainted with the work of his colleagues in other parts of the world.

X-Rays: How to Produce and Interpret Them. By HAROLD MOWAT, M.D. Edin. London: Henry Frowde and Hodder & Stoughton. 1915.

THIS is a small book of about 200 pages. It is divided into two parts—(1) the production and (2) the interpretation. It is well illustrated, and is fairly good so far as it goes, but it is not entirely free from inaccuracies. We think the subject has now become too extensive to be very satisfactorily dealt with in this way.

Report on the After-Histories of Patients Discharged from the Brompton Hospital Sanatorium at Frimley during the Years 1905-1910. By S. H. HABERSHON, M.D., F. J. WETHERED, M.D., P. H. HARTLEY, M.D., J. J. PERKINS, M.D., and W. O. MEEK, M.B. Aldershot: Junior Army and Navy Stores, Printers. 1914.

THIS *Report* will be of much value to the statisticians of tuberculosis, and to those interested in the success of sanatorium treatment. It shows that of 690 patients 55.9 per cent were well and able to work at the end of the fourth year following discharge, or 44.5 per cent if only those are taken in whose sputum tubercle bacilli could be found; at the end of the fifth year the figures for 292 patients were 48.4 and 38.8 respectively. To ensure the maximum benefit from sanatorium treatment, efficient after-care is shown to be essential. Benefit, as might be expected, is more likely to follow when the patient comes under treatment in an early stage of his disease.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

EDITED BY ROY F. YOUNG, M.B., B.C.

SURGERY.

Minor Points in Major Surgery. By William Lee Secor (*American Journal of Surgery*, November, 1915).—In this address the author draws attention to minor points in major surgery that insure a smoother convalescence and better end results. He deplores the tendency of senior surgeons to hand over post-operative treatment to inexperienced residents; indeed, he considers such a practice to be unjust both to the resident and to the patient.

Preparation of the patient for operation.—Castor oil should be given forty-eight hours before operation, as cathartics given only twenty-four hours before may cause post-operative gas pains. Two enemata are given, one twelve hours and the other three hours before operation. In this way much is done to prevent adynamic ileus, a condition with the cause of which operative handling of intestine has but little to do. The skin area is prepared by the author's iodine method. Several pre-operative doses of hexamethylenamine are given the day before operation, lest the catheter should have to be used afterwards. On the table a small pillow should be so placed as to preserve the curve of the spine, and so prevent subsequent backache.

The anæsthetic.—This is preceded some three-quarters of an hour before operation by $\frac{1}{4}$ grain morphia, $\frac{1}{16}$ grain atropine, and $\frac{1}{16}$ scopolamine. As an adjunct to the chloroform or ether a few drops of aromatic spirits of ammonia are used occasionally, and when the anæsthetic is stopped the inhalation of ammonia is continued until the patient is out from the influence of anæsthetic. The "axillary sup" is resorted to in all severe and prolonged operations. From a pint to a quart of 5 per cent glucose in normal saline is run under the breasts during the operation.

Incision.—The rectus incision is used for all abdominal and pelvic operations.

Drainage.—The need of this is less the better the technique. Coagulene or coagulose are used to stop oozing of blood. If pus is present in only small amount it is wiped out, ether poured into the cavity, and the wound closed.

Post-operative treatment.—For post-operative gas pains and for dilatation of the stomach the author has had excellent results from the use of $\frac{1}{30}$ to $\frac{1}{25}$ grain of eserine administered hypodermically. At the end of a week some line of tonic treatment is adopted. —CHARLES BENNETT.

OBSTETRICS AND GYNÆCOLOGY.

Extraperitoneal Cæsarean Section.—Dr. Markoe (in the *Bulletin of the Lying in Hospital of the City of New York*, September, 1915) gives his personal experience of this operation. He first reviews the literature from Joerg, who first proposed the operation in 1809, through Gaillard Thomas, who tried to revive the operation in 1870 under the name of laparo-elytrotomy, down to recent times. It is difficult to know whether or not a woman is infected before operation, for cultures taken through the vagina are unsatisfactory, and there is often not time to wait for a culture after a patient has been admitted to hospital.

The technique followed by Dr. Markoe is as follows:—The abdomen is opened in the middle line from pubes to umbilicus; the fascia is divided and the recti muscles separated; the bladder is exposed—if it contains a little fluid the operation is facilitated. The fascia is by blunt dissection separated from the peritoneum, and the anterior wall of the bladder laid bare almost down to the urethra. There is sometimes a little bleeding from the plexus of veins behind the symphysis. The peritoneum at the fold formed by the junction of the parietal and visceral layers is then dissected up; the bladder is then loosened from its support on the left side, dissected loose posteriorly and carried over to the right of the median line, where it is kept out of the way by the fingers. The peritoneum is next dissected up on the anterior wall of the uterus far enough—10 cm. or so—to deliver the child; a vein on the front of the uterus may require ligature. This blunt dissection is performed by the fingers protected with gauze. An incision of about 10 cm. is then made in the lower uterine segment, which is so thin that care is required to avoid cutting the fœtus. If the head is below a single blade of the forceps may be used as a vectis to extract it. Should the peritoneum be wounded it should be stitched at once. The uterine wound is closed in two layers with chromic gut. Into the space behind the symphysis a cigarette drain is introduced; the bladder is returned and sutured in position; a rubber drain is introduced above the bladder; the fascia is stitched with catgut, and at the drainage-tube two silkworm stitches are passed and tied loosely so that they can be subsequently tightened.

In the first case a culture obtained from the cavity through the uterine wound showed staphylococcus aureus and a non-hæmolytic streptococcus; these organisms were subsequently found in the fœtus, which died three weeks later of septicæmia.

The second patient had previously been delivered by Dr. Markoe by Cæsarean section. In her case the operation was complicated by the low insertion of the placenta, which was firmly adherent, and caused much hæmorrhage before and during the operation; the woman died from hæmorrhage and shock.

Two other cases were treated in a similar way and did well, though the uterus contained staphylococcus aureus. In one the vagina and the wound were swabbed with iodine.—E. H. L. OLIPHANT.

Fissure Fracture of the Vault of the Skull in the New-born.—Truesdell (in the *Bulletin of the Lying-in Hospital of the City of New York*, September, 1915) describes a case in which a baby, seven days old, fell off the

bed and fractured its skull; there was a fissure running across the right parietal bone from the coronal to the lambdoidal suture. There was no evidence of either brain injury or of intracranial bleeding, and the infant made an uninterrupted recovery and was well at the end of six months. Radiographs are given showing the extent of the injury at various stages, and Dr. Truesdell suggests that such injuries—where the symptoms are slight—may easily be overlooked unless radiography be used to establish the diagnosis.—E. H. L. O.

Practical Experience with the Obstetric Chair.—Markoe (in the *Bulletin of the Lying-in Hospital of the City of New York*, September, 1915) recurs to the use of the chair which he previously described in the same journal, June, 1914. He claims that the woman is placed in the best position to utilise her own powers and to take advantage of the force of gravity, and she can be placed in a comfortable attitude for resting between the pains. Dr. Markoe illustrates his chair, and is so much pleased with his results that he is having a portable pattern made for use in private practice. He gives a tabular summary of 179 consecutive cases, and claims that the use of the chair greatly assists labour, and that, as regards abnormal pelvis, in 33½ per cent of the cases the chair apparently obviated the necessity of any other artificial aid.—E. H. L. O.

Radium in the Treatment of Carcinomas of the Cervix Uteri and Vagina.—Howard Kelly and Burnam, of Baltimore (in *The Journal of the American Medical Association*, 27th November, 1915), related to the American Medical Association, in June, their experience in the use of radium, limiting the paper to the effects of the treatment on epithelial new growths of the vagina and cervix. They are of opinion that Wertheim's radical hysterectomy yields a higher percentage of permanent cure in cancer of the uterine cervix than any other operative procedure. It affords much less help in primary cancer of the vagina.

Since December, 1912, they have used radium systematically, and for the last eighteen months the patients in the operable class have been invariably treated with radium in addition to the operation.

They describe their technique and illustrate their application, and give tables to illustrate the dosage at various distances and through various depths of tissue. The radium acts in a ratio inversely proportional to the square of the distance, and the tissues absorb 8 per cent of the beta rays for each one-tenth millimetre, and 5 per cent of the gamma rays for each centimetre of tissue.

They call a unit of dosage 1 mg. at 1 mm. in one second on 1 sq. mm. of surface, and draw attention to the fact that the increased duration of the application diminishes the amount of radium required to produce the unit energy. Thus a unit dose at a depth of 5 cm. can be secured with 1 gm. radium in about 13 seconds, or with 200 mg. in about a minute. They attack the cancer from various directions, but promise more details later of this part of the technique.

After describing the local action of the radium, which has no selective action on the cancer, they maintain that radium can and should be used without any local or general injury. The sloughings of bladder and rectum reported can and should be avoided.

Of the 213 cases treated, 14 were operable and 199 inoperable. Of the operable cases 10 were treated prophylactically with radium; for various reasons

the other four were treated with radium without operation. All have done well, and considering the large proportion of recurrences after operation the result is considered highly encouraging.

Of the inoperable, original, and recurrent cases (199), 53 have been clinically cured, by which is meant the complete disappearance of the cancer so far as palpation, curettage, or other diagnostic methods can discover, with apparent perfect general health of the patient. 109 patients have been materially improved, and 37 were not improved.

Among these conclusions they claim that the betterment in the "improved" cases alone would justify the use of radium. They have reason to believe that, provided general metastasis is not evident, every case of inoperable cervical and vaginal cancer stands a chance of, at least, one in four of cure by radium, and that by the joint use of radium and operation in operable cases the chance of cure may be raised to three in four.

Some cancers do not respond to radium, and further enquiries are necessary to investigate the causes of this. As regards operation, they are meanwhile inclined not to operate by hysterectomy in cases which were inoperable and are apparently well. Of course, in cases becoming operable, but not apparently cured, operation should be performed.—E. H. L. O.

The Action of Radium on Cancer of the Pelvic Organs.—Henry Schmitz, of Chicago (in *The Journal of the American Medical Association*, 27th November, 1915), at the June meeting of the above Association, read a paper on the results of radium treatment that gives in tabular form the dosage and results in a number of cases. He also has a number of micro-photographs of tissues removed after radiation. He made use of brass filters, in preference to lead, of 1 to 1.5 mm. in thickness. He administers three to four thousand milligram hours of radium element in from fourteen to twenty-one days. He controls the secondary rays by pure rubber filters, 1 to 3 mm. thick.

Inoperable cancers if not too far advanced yield satisfactory results, but advanced inoperable and recurrent cancers are usually refractory; any improvement is temporary. The patients radiated after operation have done well, so that if the case is operable it should be operated on and radiated. Clinical and histological studies show that radium is a valuable addition to the therapy of cancer, but years of observation are still necessary to demonstrate anatomical cures.—E. H. L. O.

Books, Pamphlets, &c., Received.

Guy's Hospital Reports. Edited by F. J. Steward, M.S., and Herbert French, M.D. Vol. LXVIII, being Vol. LIII of the Third Series. London: J. & A. Churchill.

Yellow Fever Bureau Supplement: Volumes I and II, Yellow Fever Commission (West Africa) Reports on Questions connected with the Investigation of Non-Malarial Fever in West Africa. Volumes I and II Published by The University Press, Liverpool. (Price, Vols. I and II, 25s. net.)

Handbook of Massage for Beginners, by L. L. Despard. Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. 1915. (6s. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FIVE WEEKS ENDED 22ND JANUARY, 1916.**

	WEEK ENDING				
	Dec. 25.	Jan. 1.	Jan. 8.	Jan. 15.	Jan. 22.
Mean temperature,	39·9°	43·7°	46·1°	45·1°	45·2°
Mean range of temperature between highest and lowest,	7·3°	6·5°	7·0°	9·0°	8·5°
Number of days on which rain fell,	7	7	7	5	7
Amount of rainfall, . ins.	1·05	1·13	1·27	0·15	1·62
Deaths (corrected), . . .	352	329	314	303	295
Death-rates,	17·0	15·9	15·0	14·5	14·1
Zymotic death-rates, . . .	0·5	0·9	0·7	1·1	0·9
Pulmonary death-rates, . .	4·4	4·1	4·5	3·6	2·5
DEATHS—					
Under 1 year,	70	50	48	26	45
60 years and upwards, . .	117	107	93	83	98
DEATHS FROM—					
Small-pox, . . . . .	...	...	...	...	...
Measles,	4	4	4	7	5
Scarlet fever,	2	7	5	7	4
Diphtheria,	2	4	4	5	5
Whooping-cough,	1	1	...	3	1
Enteric fever,	1	...	1	...	1
Cerebro-spinal fever, . . .	2	...	1	1	...
Diarrhoea (under 2 years of age),	5	6	3	7	3
Bronchitis, pneumonia, and pleurisy,	79	72	73	58	34
CASES REPORTED—					
Small-pox, . . . . .	...	...	...	...	...
Cerebro-spinal meningitis, .	4	1	1	5	...
Diphtheria and membranous croup,	24	30	30	35	28
Erysipelas,	32	39	34	35	28
Scarlet fever,	118	113	116	115	111
Typhus fever, . . . . .	...	...	...	...	...
Enteric fever,	4	2	6	2	1
Phthisis,	74	44	21	48	48
Puerperal fever,	3	3	4	6	4
Measles,*	81	66	74	207	189

* Measles not notifiable.

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ORIGINAL ARTICLES.

PYURIA, A SYMPTOM: ITS CAUSES AND DIAGNOSIS.

By DAVID NEWMAN, M.D., F.R.F.P.S.G.
Consulting Surgeon to the Glasgow Royal Infirmary.

At any point of the urinary tract, from the kidney to the urethral meatus, pus may emanate, or it may gain entrance from neighbouring parts; hence pyuria is a symptom of many different lesions.

The important facts to ascertain in cases of pyuria are:—To determine the nature of the infection, to locate the lesion, and to find out the amount of harm which has resulted from the septic invasion. To do this the various avenues of infection will be investigated, the particular organisms found in the urinary tract will be examined, and the changes in the tissues and in the urine produced by them will be mentioned. The methods employed in ascertaining the points at which the pus may gain access to the tract will be described, and it will be shown how a cystoscopic examination demonstrates the source of the pus, and the character of the lesions associated with the pyuria.

To discover the presence of pus in the urine is important, but

to trace the cause and recognise the particular lesion producing the pyuria is necessary before any intelligent and effective treatment can be adopted. Pyuria is almost always due to a bacterial infection, and while in most cases the organisms are present in large numbers, and are easily discovered and propagated on culture media, in diseases such as tuberculosis and gonococcus infections the organisms may not only be difficult to find, but all attempts at cultivation may fail. An apparently septic but really sterile pyuria may be due to three causes—to a tuberculous or to a gonococcus infection, or to an old infection, the active organisms of which have died out and disappeared. All so-called sterile pyurias must be looked upon with suspicion; they almost invariably prove to be due to a quiescent renal tuberculosis. In some pyurias the pus may appear in amounts to be appreciated only by the microscope—for example, in the early stage of renal tuberculosis, or it may escape in very large quantities, so as to form a considerable bulk of the evacuation, as seen in pyonephrosis and chronic cystitis.

It is unnecessary to remark here upon the methods used in the detection of pus, and the means employed to distinguish it from other urinary deposits.

The gross physical characters of pus vary considerably. It may be present in an acid urine in small quantity, when it deposits as a slight cloud at the bottom of the test-glass; it may be mixed with mucus and elude detection, except by the microscope; when abundant and in an alkaline urine it may form a copious yellowish-white creamy sediment, or it may be curdy and contain flakes.

When the reaction is alkaline, as for example in cases of cystitis with decomposition of urea, the pus corpuscles break up and the deposit forms a dense jelly-like mass with a consistence of white of egg, and is liable to be mistaken for mucus, from which it differs in giving the reaction for albumen, which of course mucus fails to do. The appearance of pus is only a sign. It is not the physical properties of the pus that are of importance, but rather the bacteriological conditions which are associated with its production, and, unfortunately, the former afford no clue to the latter. The reaction has been considered by many surgeons as a guide to the site from which the pus comes, acidity pointing to a renal and alkalinity to a vesical

origin. There is no foundation for this widespread belief. Alkaline purulent urine is often found flowing directly from the ureter, while pus originating in a cystitis is very commonly found to be acid. When infection of the urinary tract has occurred, the reaction of the urine is determined by the organism producing it. The organisms which do not decompose urea, and which consequently are associated with acid urine, are *bacillus coli communis*, *tubercle bacillus*, *streptococcus pyogenes*, *pneumococcus*, *bacillus typhosus*, and pyogenic cocci. The organisms which cause decomposition of urea, and are, therefore, found in alkaline urine, are *staphylococcus pyogenes aureus*, *staphylococcus pyogenes albus*, *gonococcus*, and *bacillus proteus*. As a general statement, it may be said that of all the infections of the urinary tract, one-third of the cases are the result of invasion by urea decomposing organisms, while in two-thirds the urine gives an acid reaction.

As early as 1859 Pasteur¹ satisfied himself that the ammoniacal decomposition, so often found in the urine in cystitis, was due to a living organism or ferment, and it was believed at that time that the inflammation of the bladder was necessarily preceded by the establishment of an alkaline reaction. Traube² observed that in cases of retention, so long as the bladder was not interfered with by instruments, the reaction of the urine remained acid, but that frequently after the passage of a catheter it became ammoniacal. It was, however, only when bacteriology came to be studied that the true nature of the action of different organisms came to be known, and the mode of invasion definitely fixed.

At the Edinburgh meeting of the British Medical Association³ I had the honour of introducing a discussion on septic infection of the urinary tract, and, with reference to the point now being considered, I said:—"Guyon, in 1888, proved that pure cultures of various pathogenic micro-organisms might be introduced into the healthy bladder without inducing a cystitis, and since then other observers have carried out extensive researches to show that the presence of pathogenic bacteria in the healthy bladder does not necessarily induce cystitis, but that when the resisting power of the mucous membrane is diminished, by the presence of a foreign body, by reason of injury, or as a result of the presence of residual urine, then infection is liable to take

place. When retention of urine is produced artificially, and ammoniacal fermentation is permitted to occur, if introduced into the bladder under these circumstances, pyogenic micro-organisms rapidly produce suppurative and infective inflammation.

“Another point of importance is one which must be recognised by every clinical observer—viz., that without the introduction of micro-organisms, retention of urine does not of itself give rise to inflammation. According to the observations of Aschoff, Schmidt, and Schnitzler, the bacillus coli communis is most commonly present in the urine in cases of cystitis, also the proteus vulgaris, and not infrequently pure cultures of these organisms may be obtained from the urine. The etiological relationship between the organisms and the inflammatory changes has been clearly demonstrated, but more information is required respecting the precise conditions which regulate the virulence of septic attacks, especially those resulting from lymphatic invasion.”

An important observation bearing upon the etiology of sepsis of the bladder is that, in the large majority of cases, the viscus had been examined either by the finger or by instruments prior to the onset of cystitis.

As a result of experimental enquiry, it may be asserted—

(1) That simple retention of the urine does not give rise to septic inflammation.

(2) That small cultures of pyogenic micro-organisms, such as staphylococcus pyogenes aureus, staphylococcus pyogenes albus, tubercle bacillus, or bacillus coli communis, when introduced into a healthy bladder, fail to produce sepsis.

(3) That if the mucous membrane of the bladder be injured or diseased prior to the introduction of micro-organisms, sepsis immediately occurs.

(4) That if artificial retention of urine is induced from six to twenty hours after the introduction of the septic organisms into the bladder, suppurative inflammation of the mucous membrane follows.

Avenues of invasion.—The avenues of infection or the channels along which the invasion by microbes may occur

may be shortly stated—by the blood, the lymphatics, along the lumina of the excreting ducts, and by continuity and through wounds.

The septic renal diseases are:—

1. *Purulent embolic nephritis*.—A descending septic and suppurative lesion of the kidney, without pre-existing disease of the conducting and collecting portions of the urinary tract, the septic virus being conveyed to the kidney by the blood.

2. *Purulent interstitial nephritis*.—An ascending interstitial nephritis, infection being by the lymphatics, from a primary septic focus in the lower urinary passages.

3. *Acute septic nephritis without suppuration*.—An ascending septic lesion of the kidney without suppuration, the virus being carried to the kidney (most commonly to the cortex) by the lymphatics.

4. *Pyelonephritis*.—Suppurative nephritis with antecedent septic disease of the pelvis, the secondary foci in the parenchyma of the kidney being mostly due to direct contamination through the uriniferous tubules and lymphatics.

5. *Pyelitis*.—Suppurative disease of the mucous membrane of the pelvis; without distension of that cavity.

6. *Pyonephrosis*.—Accumulation of pus or of purulent urine in the pelvis of the kidney, the accumulation being a result of mechanical obstruction, with atrophy of the renal tissue, but without secondary infective foci or independent accumulations of pus in the parenchyma of the organ.

In inflammation of the bladder the two most frequent sources of infection are from the intestines on the one hand and *via* the urethra on the other. In the former, from the blood, the organisms reach the bladder through the kidney or through the lymphatics; in the latter, along the urethra.

There may be said to be three modes of infection:—

1. Ascending infection by the path of the urethra, which, for obvious reasons, is more common in women than in men—for example, in gonorrhœal and coli bacillus infection.

2. Descending infection, or hæmatogenous infection, where the organisms are conveyed from a primary focus to the urinary tract by the blood and are excreted by the kidney. This happens in tuberculous, in typhoid, and in coli bacillus infections.

3. Transparietal infection through the lymphatics from the intestine to the bladder, as observed in appendicitis, in dysentery, and internal hæmorrhoids.

Organisms.—Besides detecting the presence of pus in the urine, the clinical observer must therefore determine the micro-organisms giving rise to the formation of the discharge. By the microscope alone the presence of bacteria may be demonstrated, but in order to reveal their identity cultivations are necessary, and perhaps these methods may require to be supplemented by inoculation experiments upon animals.

The individual pathogenic organisms causing pyuria are worthy of careful consideration, and it may be noted that in the large majority of cases the infection is in the first instance a pure infection, and becomes mixed only after instruments have been carelessly employed. It is now recognised that there is a very marked variation in the activity and virulence of individual organisms as seen in different cases, and probably this is most marked in the coli and typhoid groups.

The organisms found in acid pyuria will first be described, and afterwards those that decompose urea and render the urine ammoniacal.

The *bacillus coli communis* is by a long way the most common cause of cystitis—close upon 70 per cent of the cases examined; and in the bladder, as elsewhere, its virulence varies according to circumstances. In some cases its presence causes little or no local disturbance, only the harmful effects of its toxins calling for attention, while in other instances its virulence is great.

In about 35 per cent of the cases of pyelitis the coli bacillus is the cause of the trouble. The bacillus coli, being absorbed into the circulation through lesions in the intestine, is deposited in the kidney or the bladder. This occurs most commonly when the intestinal tract is obviously diseased. It is found, as a matter of experience, that pyelitis, septic nephritis, or cystitis comes on very commonly in the course of convalescence from enteric fever, dysentery, or acute diarrhœa. Any injury of the intestine, or even injury of the tissues in its neighbourhood, seems to be sufficient to promote the emigration. After

operations for appendicitis it is not uncommon to meet with transitory hæmaturia as a result of coli bacillus lesions in the kidney or bladder. Probably the microbes pass from the intestines very much in the same manner as serous fluid does, and from the same or similar causes; in fact, the two transudations are often coincident, but their relationship to one another is not fully understood.

The organisms taken as a pure culture from a peritonitis arising from a perforation of the intestine are found to be more virulent than when taken from a healthy intestine; or again, if the intestine be obstructed artificially, the activity of the bacillus is also increased. Also, in different cases of pyelitis and cystitis degrees of virulence may be observed, and while the organisms derived from one case on cultivation and inoculation into animals may produce very mild effects, those taken from another case which appears to be exactly similar may induce very grave results. The bacillus coli seems also to have the power of increasing the activity of other bacilli, or of rendering their product more harmful.

The bacillus coli produces a hæmolysin and an endotoxin, but the opsonic and phagocytic indices and the agglutination reactions are of little or no value. By staining reactions alone the bacillus cannot be distinguished from the typhoid bacillus or bacillus proteus, and to identify it a culture test is required.

When the renal pelvis or the bladder contains a phosphatic stone, and comes to be infected with bacillus coli, the surface of the stone becomes honeycombed and covered with a layer of soft mucus which completely envelops it and protects the mucous membrane; and at the same time the calculus is gradually eaten into and becomes very friable, so that from the kidney it can only be removed in fragments, and in vesical stone, on account of the mucous covering, is difficult to discover with a sound.

Bacillus typhosus is found in about 3 per cent of the cases of pyuria, but, as seen by the surgeon, the quantity of pus is so small that its presence is liable to escape notice, unless all such cases are examined bacteriologically as a routine practice. Failure to conduct a complete examination in the milder forms

of pyuria probably accounts for the small number of cases in which this bacillus is found. These may be carriers of enteric fever, and the bacilli have been found to be present for weeks, months, and in isolated cases for years after convalescence. While the typhoid bacilli are present in any quantity albumen also is present, and as the bacilli disappear so also does the albumen. Obstinate cases of pyelitis and cystitis may follow in the path of enteric infection, and less frequently suppurative processes may be established in the kidney. In the course of time there is a liability to infection with bacillus coli, but how this comes about is not very clear. The urine is liable to be occupied by small gelatinous clouds of mucus-like material, impregnated with bacillus coli and pus. The cystoscopic appearances are characteristic.

Tubercle bacillus may gain access to the upper urinary tract through the blood stream, through the ureter from the bladder, or direct invasion may take place from an infected contiguous organ. At one time the route of infection was believed to be, in the great majority of cases, upwards to the kidney from the testicle, bladder, and ureters, but now it is well known that the organisms are carried by the blood to the kidney from some focus of infection in the body.

In an article published in *The Lancet* I classified the channels along which the microbes of tubercle may travel as follows:—

1. By the blood stream¹—(a) The tuberculous particles may be so small as to be stopped only in the ultimate capillaries, where they give rise to numerous miliary deposits (in such instances the blood stream becomes contaminated while passing through tissues or organs foreign to the urinary apparatus); or (b) tuberculosis may arise from infective emboli passing into a branch of the renal artery, the tuberculous virus becoming disseminated over the area of its distribution.
2. By invasion along the lymphatics of the kidney from foci in the lower urinary tract.
3. By contagion along the lumina of the excretory ducts.
4. By spreading to the kidney from continuity with other organs.

It must, however, be borne in mind that while primary infection is conveyed to the kidney by

one of these channels, the infective process becomes more complicated as the disease advances; indeed, the mode of extension comes to involve a combination of the processes just mentioned.

The quantity of pus present in the urine in tuberculous disease depends upon the stage of the lesion. During the earlier stages of renal tuberculosis the quantity of pus may be so small as readily to escape notice unless the urine is centrifugalised, or allowed to stand for several hours. Then a small deposit is seen to fall from a pale acid urine containing a trace of albumen. In these early cases the indications which suggest tuberculosis are:—

1. Polyuria and frequent micturition at first without pain.
2. Persistent slight pyuria and albuminuria in acid urine, without tube-casts.
3. Occasional hæmaturia, with comma-shaped clots in the urine.
4. Remission of the above symptoms for longer or shorter periods.

The amount of pus present in the urine varies not only according to the extent and activity of the disease, but is also regulated by the freedom of egress. At one time the ureter may be blocked, when almost no pus is seen, while later on a copious escape suddenly takes place from the tuberculous pyonephrosis which has formed. It is seldom that the bladder is the first part of the urinary tract attacked, but primary vesical tuberculosis is occasionally met with. It is not often encountered as a complication of phthisis pulmonalis, but in association with tuberculous disease of the bones and joints it is frequently seen, and in such cases, the infection being by way of the kidneys, the base of the bladder near the ureteral orifices is first attacked. Indeed, in cases of early tuberculosis of the kidney the appearances presented by the orifices of the ureters and the mucous membrane around them are often the first indication of the renal lesion.⁵

The bladder offers considerable resistance to the attack of tubercle bacillus even when the mucous membrane is injured, as shown by experiments. Rovsing has demonstrated that tubercle bacilli injected into the bladder and allowed to remain often fail to produce a lesion. This explains how it is that in

many cases of tuberculous nephritis the bladder remains healthy. But if other pyogenic organisms are present the resisting power of the mucous membrane is greatly weakened, and secondary infection is almost certain to occur.

It is more difficult to obtain the bacilli from urine than from sputum; they are less numerous in proportion to the medium in which they lie; in urine the processes of decomposition destroy them more rapidly, and smegma bacilli are apt to be mistaken for them. Koch, König, Leyden, and others have endeavoured to distinguish these bacilli from one another by staining methods, but have failed. In smegma the bacilli can readily be decolourised by a minute's exposure to alcohol, after the usual treatment with sulphuric acid, and thus can be readily distinguished from the tubercle bacillus. The smegma bacillus is non-pathogenic when inoculated into animals.

The most favourable time to look for the tubercle bacillus is immediately after a hæmaturia. This may be so, but I have found that it is in the samples of urine containing heavy purulent particles that the bacilli are most abundant, and that they are most readily found when the deposit from freshly passed urine is examined by the aid of the centrifuge. The microscope cannot be relied upon to prove a negative. In some instances the bacilli in the urine are so few in number that it is difficult, or almost impossible, to discover them simply by the microscope; in such instances inoculation experiments may help to clear up the diagnosis.

Tuberculosis can be communicated artificially to animals in many different ways; in fact, through any of the channels of access to the body. When tuberculous urine is injected subcutaneously into guinea-pigs or into rabbits it produces a typical tuberculosis within ten or twelve days.

Normal urine when aseptic becomes absorbed without producing any evil effect, or when septic it may produce a suppurative peritonitis. If, however, the experiment is performed with care, healthy urine produces a negative result; but if the urine contains tubercle bacilli or their spores, acute miliary tuberculosis is developed in the course of a few weeks, when the injection is made into the peritoneum, or if the urine be placed underneath the skin a hard tuberculous nodule is formed.

The *streptococcus pyogenes* not infrequently gives rise to septic infection of the urinary tract, and brings about diffuse inflammation and suppuration. When present in pure cultures it does not decompose urea, but it is frequently associated with the presence of other organisms possessing that power; consequently it is generally found in alkaline urine. In character it closely resembles the streptococcus of erysipelas, and by most observers the two are regarded as identical.

Pneumococcus infection of the kidney may cause very acute and grave symptoms, and sometimes involve the life of the patient. It is a condition which has not been sufficiently recognised, being liable to be mistaken for acute nephritis, but the appearance of the orifices of the ureters is very striking and characteristic, and not uncommonly the disease is limited to one kidney.

The writer has met with a number of cases within the last five years where the disease has been unilateral, and in a few marked improvement has been obtained by incision of the fibrous capsule to relieve tension of the swollen parenchyma. While the renal lesion is usually the most serious, the bladder also becomes infected and an acute cystitis develops. The invasion is never limited to the bladder only, and on cystoscopic examination the hyperæmia is most marked around the ureter orifice of the affected kidney.

We may now consider the micro-organisms which cause decomposition of urea, and are, therefore, found in alkaline urine only.

Staphylococcus pyogenes aureus is one of the most virulent septic organisms, and is very widely distributed, occurring in almost all suppurations, in normal saliva, in water, in dust, in the air, and especially on the surface of the skin. When it gains access to the urinary passages it rapidly propagates, causes decomposition of urea, and the alkaline urine, by acting upon the mucous membrane, reduces its resisting power and facilitates the entrance of the organism into the tissue.

Staphylococcus pyogenes albus is less malignant than the

yellow form, but closely resembles it, and by some bacteriologists is regarded as a variety of the organism described above; it seems, however, impossible to transform the one organism into the other.

Besides those above mentioned, there are many other varieties of organisms found in the urine in inflammatory diseases of the urinary tract, but these are the most important.

Gonococcus is often associated with cystitis, but whether it does by itself cause inflammation of the bladder is still a question unsettled. Doubtless, it causes inflammation of the seminal vesicles, which is liable to be mistaken for prostatitis, and gives rise to troublesome symptoms, sexual neurasthenia, spermatorrhœa, occasional pain on micturition or on pressure on the perineum. These phenomena are magnified by the patient, and their treatment may require much care. If the infection become a mixed one the disease is very likely to extend to the bladder.

Mixed infections are generally more virulent than pure ones. For example, a simple gonococcus, bacillus coli, or tubercle infection may for a time remain quiescent or cause little trouble when pure, but if contaminated by any of the urea-decomposing organisms an immediate change is observed by marked increased activity of the disease.

The presence of toxins or of albumen in pyuria.—Most of the symptoms arise from the harmful effects of the toxins, but, while the subject of toxins and antitoxins is beyond the scope of this article, a point of practical value may be noted, namely, that very frequently in septic infection of the urinary tract the effects produced by the toxins may give rise to painful affections, simulating lumbago, rheumatism, gall-stone, renal and vesical calculus, which symptoms diminish or disappear on the employment of a vaccine prepared from the organisms isolated from the urine, even although the quantity of pus and the number of organisms may not be diminished, the antitoxins evidently neutralising the effects of the toxins so that their harmful effects cease to be evident. This is observed most commonly in bacillus coli infections.

The urine generally contains both pus and albumen, but, as a

rule, the quantity of albumen is not fully accounted for by the pus. In cases of acute infection, where the organisms are present in large numbers, the pus is abundant, and the albumen bears a close relationship to the number of corpuscles; while in chronic affections, especially if the kidneys are involved, the albumen exceeds what can be accounted for by the pus. In such instances, there is probably a leakage from the blood-vessels and lymphatics, or there may be organic disease of the parenchyma. It has been found by observation that in urine 100,000 pus corpuscles per c.c. account for 1 per cent of albumen, and so downwards in proportion. Below 10,000 pus cells per c.c. the urine shows only a trace of albumen, unless there is renal disease. Again, if the albumen is over 1 per cent, or if it is greatly in excess of the amount accounted for by the corpuscles, then the conclusion may be come to that the kidneys are at fault.

Many physicians who have written on the subject distinguish two kinds of albuminuria—true and false. With a view to present to the reader a lucid and concise statement from the physician's standpoint, I quote from an article in Quain's *Dictionary of Medicine*. Sir T. Lauder Brunton states, briefly and clearly, the generally accepted view in respect to this classification. He says:—

“In order to distinguish more clearly between the different kinds of albuminuria, we may divide them into (1) *false* albuminuria, in which some other albuminous body than serum-albumin is present; (2) *true* albuminuria, in which serum-albumin, frequently accompanied by globulin, appears in the urine. In *true* albuminuria there is always some change, either in the circulation through the kidney or in the structure of the kidney itself. In *false* albuminuria, the albuminous body passes out through the kidney without there being any alteration either in its circulation or structure.

“(1) *False albuminuria*.—The chief albuminous bodies occurring in false albuminuria are hæmoglobin, egg-albumin, globulin, and Bence-Jones's albumin (albumose). Hæmoglobin occurs in the urine whenever blood is present in it, in which case it is contained in the corpuscles; or it may occur free, the blood-corpuscles, while still circulating in the vessels, having undergone solution. This may result from the inhalation of

arseniuretted hydrogen, or from the introduction of bile-acids or of a large quantity of water into the veins. Hæmoglobin is also found in the urine in paroxysmal hæmoglobinuria, but the cause of the solution of blood-corpuscles in this disease is unknown. Egg-albumin is excreted by the kidneys, and appears in the urine whenever it is injected directly into the circulation or under the skin, or when it is absorbed unchanged from the stomach or rectum. When taken into the stomach, it is usually completely digested before it undergoes absorption, but when taken in such large quantities that the whole of it cannot be digested, part of it is absorbed unchanged and is excreted in the urine. Thus, a diet consisting exclusively of eggs, especially when continued for several days, produces false albuminuria, and large enemata of eggs have a similar effect in animals, and probably also in man. Bence-Jones's albumin is of very rare occurrence. It is found in osteomalacia. Like egg-albumin, it is excreted by the kidneys when it is injected into the circulation or in large quantities into the intestine. It is almost, if not quite, identical with the hetero-albumose which Kuhne finds to be one of the products of imperfect digestion. It seems probable that those cases of albuminuria which appear to depend on imperfect digestion are due to the passage into the systemic circulation of albuminous bodies which have not undergone the proper transformation in the alimentary canal or liver.

“(2) *True albuminuria*.—In true albuminuria there must be some change, either in the circulation or structure of the kidney, for serum-albumin differs from the other albuminous bodies just mentioned in not being excreted by the healthy kidney. Some regard the alterations in the circulation which produce albuminuria as of two kinds—(a) Increased pressure of blood in the renal arteries; (b) increased pressure in the renal veins. Increased pressure in the arteries may depend either on general high arterial tension, or upon an increased local supply of blood to the kidney owing to dilation of the renal arteries, such as follows division of their vasomotor nerves. Experiments seem to show, however, that increased tension in the renal arteries does not produce albuminuria, and that the only change in circulation which will cause it is increased pressure in the renal veins. Congestion of the renal

veins may be produced by ligature of the renal arteries; and when the flow of blood through the kidney is temporarily arrested by ligature of the artery, the urine secreted after removal of the ligature is albuminous. Venous congestion of the kidney also occurs whenever the onward flow of venous blood is obstructed, either by a ligature on the renal veins, by the pressure of a tumour or of the pregnant uterus upon them or the vena cava, by disease of the liver obstructing the vena cava, or by disease of the heart or lungs, such as tricuspid or mitral regurgitation or chronic bronchitis and emphysema. The temporary albuminuria sometimes observed after cold bathing may also be due to venous congestion, and it is probable that albuminuria consequent upon lesions of the nervous system is due rather to the changes which these produce in the circulation than to any direct action of the nerves upon the tissues of the kidney itself. The albuminuria observed after varnishing the skin is probably due to the retention of some substance which acts as a poison. The structural changes in the kidney which cause albuminuria are acute and chronic inflammation, waxy degeneration, and cirrhosis."

May we observe that Lauder Brunton in the first instance classifies cases according to the chemical reaction given by the albuminous bodies found in the urine, and then links on certain pathological qualifications as if there were some correlation between the two methods of grouping—the chemical and the clinical? Unfortunately, no such correlation exists when all forms of albuminuria—renal and extra-renal—are included. The classification fails in so far as it takes no cognisance of those cases in which albumen is added to the urine after it has escaped from the kidney. It is accepted, however, by many medical writers. Others define "false" as being synonymous with "extra-renal" or "accidental" albuminuria, the albumen being added to the excretion after it has left the kidney, as in pyelitis and in catarrh of the bladder, as well as in prostatic and spermatic albuminuria. On the other hand, under renal or true albuminuria are included not only the whole class of maladies which come within the heading of "Bright's disease," but also others in which there is no definite structural change in the renal tissue, as in albuminuria arising from mechanical causes which influence the blood-pressure within

the kidney—for example, muscular exercise, pregnancy, movable kidney, abdominal tumours, &c. The latter classification is the one most acceptable to the surgeon, who should endeavour to answer the following questions:—

1. Is the albuminuria entirely due to the presence of pus in the urine?

2. Is the albumen derived from the kidney or from the lower urinary tract?

3. If derived from the kidney, is the albuminuria due to Bright's disease, or is it a result of other causes?

To clear up these points is of great importance when operative interference is contemplated.

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(*To be continued.*)

NASAL AFFECTIONS AND DEAFNESS.

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It is a gibe commonly levelled at specialists that their vision extends no further than the bounds of their specialty. One remembers, for instance, the lepidopterist of Oliver Wendell Holmes who lived, intellectually, on the wing of a particular species of beetle. Whether this gibe was ever true in reference to those who paid particular attention to well-defined departments of medical science, or whether it was the outcome of the animosity evinced by general physicians and surgeons in the early days of medical specialism, it would not be profitable now to enquire. At the present day it is rarely levelled, and it is, in the main, not true. Indeed, with regard to the specialty which comprises affections of the ear, nose and throat (what a pity, by the way, there is no one term to define this specialty !) its bounds have so extended that even if one dwelt within them he could hardly run the risk of narrow-mindedness.

From the ear the specialist has passed into the brain in the wake of intracranial complications of ear disease; from the nose he has done the same following sinus disease, and also in the surgical treatment of pituitary cysts and tumours by the Hirsch or nasal route, the route now generally adopted. He has come to the assistance of the ophthalmic surgeon in the treatment of dacryocystitis by intranasal dacryocystotomy, and of certain affections of the optic nerves; and as for the throat, the direct methods of examination and treatment have led him into the remote parts of the bronchial tree, and through the whole length of the œsophagus actually into the stomach. And the strange part of this progress is that it has not met with serious opposition from those already in possession. Like British colonisation, its influence is recognised to be, in the main, beneficent.

There exists, however, within the specialty itself a cleavage

which has always seemed to the writer unfortunate, and which has tended to obscure the importance which attaches to the subject of which this communication treats. In Glasgow, in some of the London medical schools, and in some of the medical schools on the Continent and in America, specialists in this branch have been sharply divided into otologists and laryngologists. Rhinology was for a time the step-sister of each, and it was only its own inherent importance, and the many problems connected with it which have forced themselves forward, which have caused it now to take a place at any rate not inferior to its two elder sisters. It could be pointed out that Cinderella actually became a more important personage than the two proud sisters. Though the simile might be pressed even thus far, there are the susceptibilities of otologists and rhinologists to be considered, though, truth to tell, rhinology, like a gracious "Princess," has been a uniting and not a dividing force. It is said that of late there has been a decided tendency towards union of all three in those schools both at home and abroad where otology and laryngology have been separately taught.

It will, I think, be conceded to-day by those whose opinion in the matter is valuable that in the study of ear diseases it is of the utmost importance to recognise the influence of nasal affections on them, both as causative and as contributory, and if to nasal affections we add nasopharyngeal, the importance is enhanced. Indeed, we may say that the large majority of cases of nasal affection have a nasal or a nasopharyngeal origin. If we consider middle-ear affections to which the larger number of cases of defective hearing are due, there are few instances in which the nose and nasopharynx cannot be, to some degree at any rate, incriminated. From which it follows that no examination of the ear is complete without a thorough examination of these parts. To the specialist, no doubt, I appear as the apostle of the obvious, for this rule is by them fully recognised. But that it is not so fully understood by others is evidenced by the attitude of many practitioners with reference to deafness in children, accompanied or not by middle-ear suppuration. Instinctively, so to speak, when a child is brought suffering from deafness, or from aural suppuration, one examines the nasopharynx, and in the large proportion of cases one finds there

in the form of a mass of adenoids the *fons et origo* of the aural affection. And yet one has been struck in reading the reports of the medical inspection of school children to observe how frequently the number of children notified as having adenoids falls short of those with deafness and aural suppuration. In large towns, where these children are sent for treatment to a clinique to which an aural surgeon is attached, this oversight is rectified; but in country places, where they have not this advantage, the treatment which parents are advised to have carried out in relation to the ear is likely to lead to no result, and to bring the subject of the medical examination of school children into disrepute. This is more likely to be the case where children are notified as having enlarged tonsils, nothing being said as to adenoids except, perhaps, in a small proportion of cases. The tonsils are reduced in size by the aid of the guillotine, and yet the deafness continues, and the middle-ear suppuration, if present, goes on as before, and does not yield to simple antiseptic or cleansing treatment. Those of us who are engaged in the practice of this special branch of surgery, and to whose lot it falls to treat large numbers of these children at special dispensaries, have learnt confidently to anticipate in the large majority of cases the restoration of the hearing, and a quick response to simple measures in middle-ear suppuration after removal of the adenoids. Moreover, though it is not uncommon to find adenoids without enlarged tonsils, it is unusual to find enlarged tonsils without adenoids. It is only fair to remark that the conditions under which the medical examination of school children is conducted make it a much easier matter to detect enlarged tonsils than adenoids. Many medical officers now notify "adenoids suspected" when an actual examination of the nasopharynx cannot be made. It is curious, however, what vitality a dictum can exhibit even in its old age. It used to be taught that enlarged tonsils were the cause of deafness in children. Though they have, without any doubt, when chronically diseased (as hypertrophied tonsils usually are), a baneful effect not only on the general health, but locally on the pharynx and pharyngeal muscles, and in this way on the Eustachian tubes and tympanic cavities, we now know that this effect is nothing like so important as that of adenoids.

It can be said that in children adenoids are by far the commonest cause of deafness, and that their removal is, in the large proportion of cases, followed by the return of the hearing to normal. Where the aural condition is that of middle-ear suppuration this, in most cases, gives way to simple cleansing treatment, the improvement in hearing depending on the amount of destruction which has taken place in the ear. It cannot, however, be prophesied with certainty that in any given case the hearing will be restored, much less that the aural suppuration will cease as a result of the removal of the adenoids. Occasionally the aural condition takes on the character of adhesive changes in the middle ear, such as are more commonly found in adults. Again, the middle-ear suppuration may have been so destructive, or may have led to such degenerative changes in the labyrinth, that there is no possibility of improvement in the hearing. Sometimes, too, the deafness has a double origin, as when there are congenital syphilitic changes in the internal ear and auditory nerve as well as those in the middle ear associated with adenoids. On the other hand, there may be, in addition to the adenoids, even in children intranasal abnormalities which require attention. It is rarely, however, that these present themselves, and I imagine no one now holds the opinion, formerly entertained by some, that the posterior ends of the inferior turbinals are always enlarged in association with adenoids, and should be amputated when these latter are dealt with.

At the danger of repeating myself, let me say that in cases of deafness accompanied or not by middle-ear suppuration in children, the treatment of the aural condition should be preceded by the efficient removal of adenoids if these are present. I say efficient advisedly, because inefficient operation on adenoids by which ragged portions of the mass remain is more likely to do harm than good, and certainly tends to perpetuate the aural suppuration. It should also be pointed out that a mass of adenoids which does not lead to any marked degree of nasal obstruction may nevertheless by its position, for instance in the fossæ of Rosenmüller, or by its tendency to cause accumulation of discharge in the naso-pharynx, have an injurious effect upon the Eustachian tubes and tympanic cavities.

Before leaving the question of adenoids, let me say a word about the presence of these growths in adults and their effect on the ears. Though they tend to retrogress at puberty, adenoids not uncommonly persist. I myself have removed large masses from people in late middle life, and no doubt they have been found in old age. In adults they are much more likely to lead to adhesive changes in the Eustachian passages and in the tympanic cavities, though muco-serous catarrh and, it need hardly be said, middle-ear suppuration are common enough as a result of their presence even later on in life, and as in children, there is no form of nasal or naso-pharyngeal condition the removal of which is more hopeful as regards the hearing. Naso-pharyngeal catarrh is still regarded as a pathological affection *sui generis*, and no doubt there are cases, chronic as well as acute, in which the catarrhal condition is primary in or limited to the naso-pharynx, but it is not a diagnosis which one would be justified in making without first excluding an origin in the throat or in the nose. However it arises, its effect upon the ear is baneful and, as such, requires treatment not only for its own sake, but because of the aural changes—inflammatory, adhesive, suppurative—which it may give rise to. In this connection remark may be made of the injurious effect on the ears by way of the naso-pharynx of excessive cigarette smoking. At the present time there can be no doubt that not only among the soldiers but among the civil population cigarette smoking is carried to great excess, and it has seemed to the writer that in a good many instances the recurring attacks of inflammation of the pharynx and naso-pharynx from this cause have led to changes in the tympanic cavities and Eustachian passages causing deafness. If I were asked to hazard an opinion, I should say that Egyptian and Turkish cigarettes are, in this respect, more harmful than Virginian; and though much less harmful than cigarettes, a pipe is more harmful than a cigar. Of course there is tobacco and tobacco, and cigars and cigars (so-called), and it is evident that rules of smoking cannot be applied in war time, if, indeed, smoking itself is justifiable!

It is only necessary to refer to grosser lesions of the naso-pharynx—tumours, malignant and simple; ulceration, syphilitic, tubercular, lupus—which tend to affect the ears, though this

tendency is of much less significance than their own inherent importance.

Passing to the nasal passages proper, the most important condition from our present point of view is posterior turbinal hypertrophy, and chiefly as it affects the posterior ends of the inferior turbinal bodies. This hypertrophy may be so great as actually to obstruct the Eustachian orifice. More commonly the effect on the ears is due to the discharge which collects about the hypertrophied extremities, and which, undergoing degenerative changes, causes acute, subacute, or chronic nasopharyngeal catarrh extending into the Eustachian tubes. At the same time a pharyngitis is caused by the mouth-breathing consequent on the nasal obstruction. Next to adenoids there is no condition in which operation holds out hope of greater benefit to an associated aural affection and deafness than this. Nasal polypi, especially when they involve the deeper or posterior part of the nose, are comparable in their effect on the ear to posterior turbinal hypertrophy, and their removal is in a similar sense hopeful. Only less important than posterior turbinal hypertrophy, as far as the ears and hearing are concerned, is hypertrophy of the anterior ends of the inferior turbinals, and the effect is probably caused in much the same way by the discharge which collects in the inferior meatus in these cases.

It is not the aim of this communication to discuss the treatment of nasal affections, but with reference to the enlargement of the anterior ends of the inferior turbinals the writer deprecates the quixotic conservatism which some specialists exhibit in regard to these parts. While quite ready to concede that the mucous membrane of the nose is sacrosanct, and that none of it should be sacrificed without very good cause, this attitude should not prevent the removal of a small portion of the inferior turbinal if one has formed the opinion that this is advisable because of its effect on nasal respiration or on the hearing. Whether this is done by the snare or the cautery does not much matter in competent hands, though, as a matter of fact, the cautery is much less commonly used than formerly. In untrained hands the cautery is decidedly a double-edged weapon. It would be well if this were more generally recognised. One at times shudders at the gay manner

in which men announce their possession of a nasal cautery. One can almost hear the war cry of the Red Indians after scalps! Sometimes the mucous membrane can be retained by submucous removal of a part of the turbinate bone, though, as a rule, this is not sufficient.

An enlargement, either cystic or œdematous, of the middle turbinate may also, in proportion as it occludes the nostril, lead to middle-ear changes and deafness. This enlargement is sometimes so great that, as in a case of a bone cyst which came under the author's care, it may completely fill the nasal passage, and even lead to dilation of it by deflecting the septum and the external wall, and by causing atrophy of the other structures in the nose.

The effect of nasal accessory sinus disease on the ears is not so commonly recognised as it should be. Especially should this possibility be borne in mind in dealing with aural suppuration. The discharge from suppurative disease of these cavities—even when the anterior set, the antrum, frontal sinus, and anterior ethmoidal cells are the ones involved—commonly finds its way to the naso-pharynx, and may thus infect the middle ear. Ozæna, too, is not infrequently associated with aural suppuration of a very chronic nature.

In all conditions of nasal suppuration a word of warning is necessary in regard to nasal douching. Indeed, this warning applies whenever douching is considered advisable, as, for instance, after certain operations on the nose. There is decided danger of forcing infective material into the tympanic cavities, so that routine douching in conditions diagnosed from lack of a detailed examination of the nose and accessory cavities as nasal catarrh is to be strongly deprecated. Fortunately it is rarely required in children, the usual cause of the nasal discharge in them, adenoids, being easy of removal. Certain rules should be observed. The head should be held with the face down, the patient should be instructed to breathe in and out through the mouth. If only one nostril is the seat of discharge the lotion should be introduced through the healthy side, returning by the other. In the same way, if one side is obstructed while the other is free, douche by way of the obstructed side. But perhaps the best rule is Punch's advice to those about to marry—don't! The author rarely prescribes

nasal douching now except after certain operations on the accessory sinuses. In other conditions a coarse spray is preferable and sufficient.

Up to the present we have considered questions about which there is general agreement among otologists. We come now to subjects where there is more or less difference of opinion. The effect of irregularities of the nasal septum, and the result of their correction on the ears and hearing, are still debated points. In part, as with other causes of nasal obstruction, that due to deflection of the septum or septal spurs has only an academic interest. For the obstruction may be so severe that the effect on the hearing and the possibility of an amelioration of the aural condition by operation on the nose are of secondary importance to the re-establishment of free nasal respiration, and would not, or only to a small extent, influence one in deciding on operative procedures. It is only when we have to deal with less severe deflections and smaller spurs that the possible association of the nasal condition with deafness, if that be present, assumes importance, and the difficulty presents itself of forecasting what will be the probable result on the hearing of appropriate nasal treatment. In what has been previously said in regard to other nasal conditions it is of course understood that the concomitant aural affection is one in which improvement of hearing is, according to our present knowledge, possible. Thus we should not expect improvement to follow the treatment of a nasal abnormality where the deafness is due to degenerative changes in the labyrinth or in the auditory nerve, or to the condition known as otosclerosis. Unfortunately, or in a sense fortunately, the changes in the ear are rarely pure, or in other words confined to one pathological entity. In this climate, at anyrate, where middle-ear affections are so common, it is the author's opinion that pure otosclerosis is uncommon, and even cases of auditory nerve deafness, such as is found in boilermakers and others exposed to loud noises in their daily occupation, are very commonly complicated by adhesive processes in the tympanum and Eustachian obstruction. It is then a difficult matter to determine how much of the defect in hearing should be placed to the account of the one or the other aural condition present. The reason why the treatment of the nasal and naso-pharyngeal affections we have

previously discussed is so hopeful as regards the hearing is because they have a great tendency to cause deafness due to middle-ear changes, as we have seen. The problem then that confronts us with reference to septal irregularities can be put in the form of a question. Are they likely to give rise to changes in the Eustachian tubes and tympanic cavities of such a nature that improvement is possible, and with improvement, more or less restoration of hearing? It is undoubted that septal deflection is frequently associated with deafness, but, unlike that found with turbinal hypertrophy, the deafness is often on the side opposite to that to which the septum is deflected, and that where there is no compensatory turbinal hypertrophy filling up the larger nasal passage. It has been too readily concluded, therefore, that the deafness is not in any way dependent on the nasal affection. Dr. Brown Kelly's researches on naso-pharyngeal thermometry probably afford some explanation of this crossed condition. In a communication which he made to the Scottish Otological and Laryngological Society he showed the alteration in the heat of inspired air which occurs as it passes through the nose in various degrees of patency of the nasal passages, and it is easy to understand that the air passing in larger volume through a wide nasal passage will reach the naso-pharynx without receiving its proper increase of heat. In fact, we get a state of things approaching the result of mouth-breathing in the pharynx, and the effect on the Eustachian opening on that side might conceivably be that of a subacute inflammation. No doubt the problem is more complex than this, and the question of the proper aeration of the Eustachian tube and tympanic cavity on the obstructed side has to be considered. Arguing from the effects of turbinal hypertrophy, as well as from experience, one would say that a septal deflection which extends posteriorly is more likely to affect the ear on the same side.

In milder degrees of septal deflection the problem is somewhat different and, in a sense, more difficult. In these cases the nasal obstruction is often intermittent, and the turbinates of the same side tend to enlarge intermittently. It has seemed to the author that in these cases adhesive changes in the middle ear are particularly liable to occur, and on the same side as the narrower nasal passage. The question of septal spurs

and their possible effect on the hearing has given rise to a good deal of controversy. The answer probably is, it depends on their size and position. Spurs are of all sizes, from a severe deflection and complete obstruction to a small anteriorly placed outgrowth. It certainly seems absurd to look upon such a small spur as a possible cause of deafness. One would ask who then shall escape? For it's a poor nose that a rhinologist cannot find something wrong with! There is this much to be said, however, with regard to all septal irregularities. With the operation of submucous resection by which the essential part of the nose, the mucous membrane, can be preserved, there need not be the same hesitation in giving the patient the benefit of sufficient nasal respiration or even of taking a "long shot" (not an impossible shot, of course), in cases where improvement in the hearing cannot be so confidently anticipated.

Reference has already been made in passing to the possibility of improvement in various aural conditions. It would be profitable to discuss this matter a little more fully. Let it be said that we have progressed far since my honoured namesake, Syme, taught his students "acute ear diseases should be treated on general principles, the chronic you should send to an aurist because nothing can be done for them." It is easier to state the conditions in which improvement in hearing cannot be expected. All affections of the internal ear and auditory nerve come under this category. Otosclerosis, although it involves the bony capsule of the labyrinth primarily, has characteristics and gives tuning-fork reactions which make it resemble a middle-ear affection in the earlier stages, though later it leads to degenerative changes in the labyrinth. Even in its early stage, however, its pathology is such that the treatment of a concomitant nasal or naso-pharyngeal condition can have no effect whatever of a beneficial nature on it. It would be well if this were clearly recognised. Sometimes it has seemed that after a nasal operation the aural condition has progressed more rapidly, though this is, naturally, difficult to determine. In mixed cases of Eustachian obstruction, adhesive tympanic changes, and otosclerosis (and there are many) our endeavour is, and it is a very difficult problem, to decide how much of the deafness is due to the condition in which amelioration is

possible, and how much to that for which treatment, as has been said, is of no avail. Even if one concludes that improvement in hearing would probably follow the treatment of the nose, one must bear in mind that the presence of the otosclerosis, which is in most cases a progressive affection, will make this improvement of only a temporary character.

It is, however, in dealing with cases of deafness due to Eustachian obstruction and adhesive changes in the middle ear, or adhesive catarrh as it is somewhat loosely called, that difficulty more commonly arises in forecasting the result of the rectification of a nasal abnormality. This will be better understood if one realises the changes in the tympanic cavity. The mucous membrane covers the inner wall of the tympanum, and also the inner surface of the tympanic membrane. When it becomes thickened by inflammation these two layers come into contact. Ulceration takes place, and ultimately adhesions, of more or less extent, form, being facilitated by indrawing of the membrane due to Eustachian obstruction from thickening of the mucous membrane in that passage. Adhesions also occur around the joints of the ossicles, and so the hypertrophic changes in the ear, which have in the first instance been caused by the nasal affection, proceed, it may be, to complete fixation of the membrane and the ossicular chain. It is easy to state the problem—it is much more difficult in practice to give the answer. The amount of movement and the area of movement remaining in the tympanic membrane as observed by examination during inflation or with the pneumatic speculum, the result caused by inflation on the hearing, as well as the degree of deafness present, must all be taken into consideration in forming an opinion. Where the deafness is not of high degree; where the membrane remains movable, especially in the posterior part; where inflation, which should preferably be by the catheter, leads to decided improvement in the hearing—then, if the nasal condition is one of the most hopeful nature, such as has already been described, a proportionately hopeful view can be taken of the result of operation on the nose. From this there are, naturally, all degrees down to complete hopelessness.

In our attitude towards these cases, if we can decide that the internal ear is healthy, or at any rate free from marked

degenerative changes, there is room for a healthy optimism. One must remember that to a person whose hearing has been reduced, say, to one inch for a watch normally heard at forty inches, an improvement in hearing to four inches may be of such a decided gain that it will permit him to continue in his occupation or profession, as that of a teacher, for instance. Or it may enable him, or more usually her, to hear the sermon, the inability to hear which, curious as it may appear to those whose tastes do not run in that direction, is a common complaint of those who are deaf; and they are not consoled by the reflection that deafness may have its compensations!

The author cannot agree with those who hold that the result of an experimental inflation should determine us in advising or not a nasal operation. Experience does not justify this attitude. More frequently than not, in cases in which inflation leads to no change in the hearing, a gradual improvement does take place after nasal treatment even without further treatment directed to the aural condition itself. Not only the result of inflation, but the other points which have been mentioned must all be taken into account. Moreover, it must be remembered that there is frequently with cases of nasal obstruction a condition of dullness of perception such as is more commonly got with children affected with adenoids, and the result of operation is most beneficial in this respect. They become, in fact, more "gleg in the uptak," though, it may be, the ordinary hearing tests do not show any appreciable alteration.

Of all aural affections the most hopeful as regards treatment are those in which there is an exudation of fluid into the middle ear, sero-mucous middle-ear catarrh, acute and chronic, or rather subacute. A common result of adenoids, for instance, is recurring acute middle-ear catarrh, showing itself by pain and deafness, and often ending in acute suppuration. In adults the affection is more often subacute, and though ultimately the fluid may be absorbed and adhesive changes in the tympanum result, the moist condition may persist. In these catarrhal affections the removal of a nasal or nasopharyngeal obstruction is followed by the most satisfactory results on the hearing.

A word or two will suffice with reference to suppurative middle-ear disease. In all nasal affections, and especially in those associated with purulent discharge, this is a possible

ultimate result. Therefore it follows that not only should this possibility be kept in mind in dealing with adenoids, turbinal hypertrophy, and nasal accessory sinus disease, but in the treatment of middle-ear suppuration the baneful effect of these conditions in promoting re-infection of the tympanum, and so hindering the successful treatment of the ear by simple cleansing methods, should be remembered. Otherwise stated, we may say that it would be very bad therapeutics to carry out a radical mastoid operation for chronic middle-ear suppuration before the nasopharynx and nose had been put into a healthy condition, unless, of course, urgent symptoms were present. For the same reason, a radical mastoid operation may fail to have a successful issue in a dry ear because of the presence of an untreated nasal affection.

Let me briefly sum up. No examination of the ear and hearing is complete without a thorough examination of the nasopharynx, nose, and nasal accessory cavities.

While every nasal abnormality is suspect in reference to the ears, some are much more so than others. In every case not only the nasal condition but the pathological changes in the ears themselves must be considered in weighing the probability of benefit to the hearing resulting from appropriate nasal treatment.

The possible baneful effect on the middle ears of nasal suppuration must be borne in mind.

THE TREATMENT OF DRUG ADDICTION.

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THERE seems to be very little doubt but that the vast majority of those unfortunate individuals who use drugs to excess are constitutionally unstable, poorly balanced, and psychopathic; they react to the difficulties and conflicts of their lives by becoming drug habitues. There are a few, especially those addicted to opium and morphine, who, on the other hand, to start with may be fairly sound constitutionally, but who, on account of definite physical disorders usually of a painful nature, have had a narcotic prescribed by their physicians, and experience such blessed relief that even although they have only been taking small doses they gradually and insidiously come more and more under its influence, and ultimately find that they are quite unable to do without it. As soon as these people begin to realise how dependent they are becoming on the drug they try to excuse themselves by saying that after all they are only taking small quantities, and that *some day* they will break themselves off their habit. That day, however, never comes. Attempts either to lessen the accustomed dosage or to refrain altogether are accompanied by such tremendous discomfort in the way of abstinence symptoms, *e.g.*, great restlessness, sleeplessness, aches and pains in bones and joints, diarrhœa, and so on, that in desperation they again have recourse to their favourite remedy; and as they become habituated, larger and larger doses have to be indulged in so that the longed-for relief may be obtained.

Up till within a few years ago the principal drug addictions were alcohol, opium, morphine, and cocaine. More recently another drug has been introduced which bids fair to become as popular as any of the narcotics mentioned above. I refer to a derivative of morphine called heroin. Heroin is an artificial

alkaloid—diacetyl morphine—formed from morphine by substituting acetyl for its two hydroxyls; the dose of the hydrochloride is from $\frac{1}{10}$ to $\frac{1}{16}$ gr. It is difficult to understand why heroin has become so popular, but one reason may be due to the fact that very large quantities of it can be taken without any marked psychic symptoms, such as hallucinations or delirious states, evidencing themselves; it rather produces simply a feeling of well-being and a devil-may-care attitude.

The majority of those who use this drug are the lowest of the low, and if anything are more vicious and more degenerate than those addicted to other forms of drug habituation. The above statement may, I think, to a certain extent be vouched for by the fact that the majority of those applying for treatment for heroin addiction are mere youths varying in age from 17 to 28 years, the average age for a series of nineteen cases being 20 years. In contrast, the average age of a series of fifteen cases of morphine addiction was 36 years, and the average age of a series of sixteen cases of alcoholism was 34 years. The above contrasts may be made still more striking when it is remembered that the devotees have usually been taking the drug for a number of years before they apply for treatment, so that there is no doubt that a good many of the heroin cases start taking the drug when they are only about 14 or 15 years of age.

The almost uniform method of using the drug seems to be to crush the tablets, and then to snuff them through the nose. The statements of the habitues are probably quite unreliable, and on that account it is hard to give any accurate statement in regard to the average amount of the drug used, but a conservative estimate would be from 10 to 30 tablets ($\frac{1}{6}$ gr.) daily. The grip of this drug seems to be a particularly firm one, and any attempt of the unfortunate victim to free himself from its grasp immediately sets up tremendous aches and pains in the bones and joints, diarrhoea, coryza, and such restlessness and sleeplessness that he becomes irritable, threatening, and so vicious that he will not hesitate to attempt violence if only he can obtain a further supply of his drug. Gradually his general health becomes undermined, he becomes shy and suspicious, and more and more shiftless and untrustworthy.

The use of narcotic drugs then causes such havoc among the

victims, and is becoming so widespread in all classes of the community, that it is the writer's belief that as wide publicity as possible should be given to successful methods of treatment. It is only too true that a great many of the institutes and sanatoria for the treatment of drug cases are in the hands of quacks and charlatans, who simply use them as money-making concerns, and not infrequently leave the unfortunate patient worse off than he was before.

Owing to the fact that a large number of patients were applying for treatment, it was decided to admit to the Psychiatric Clinic of the Johns Hopkins Hospital a series of drug cases with a view to determining what could be accomplished by certain methods of treatment.

The methods of treatment which have been found of value are (1) the Towns-Lambert method, and (2) the atropine-strychnine method as recommended in cases of alcoholism by Purves Stewart, also, perhaps more familiarly, known as the Norwood method.

Before going on to detail these methods, it will be best to give a few short abstracts of the types of cases treated.

CASE I.—W. C., 18 years, single, clerk, on admission to the Psychiatric Clinic was very restless, yawned almost continuously, but answered questions promptly and intelligently, and no special psychotic features could be demonstrated. He stated that he had been using heroin for three years, that he first took it out of curiosity, that from the very first he enjoyed the effect produced, and that up until his admission to the Clinic he had been taking from 30 to 40 tablets ($\frac{1}{6}$ gr.) daily by snuffing. While under the influence of the drug he felt very happy, but gradually he came to realise that he was not working so efficiently as formerly, that his memory did not seem to be quite so good, that his appetite was poor, and that during the course of a few months he had lost 30 lb. in weight.

He gave a history of truancy at school, of gonorrhœa in 1912, and of smoking from twenty to thirty Piedmont cigarettes daily.

Physically, he was fairly well nourished, but his heart showed

extra systoles. On the day after admission he had a peculiar anginoid attack, a feeling of constriction in the præcordium, and difficulty in getting his breath.

He was treated with the Towns-Lambert method. At first he was discontented, restless, and demanded to be allowed to leave the Clinic. Following the completion of the treatment he began to sleep well, felt comfortable, and became industrious and co-operative. On his discharge he said that he had no craving of any kind, and that he would never take a drug or smoke a cigarette again.

CASE II.—G. R., 17 years, single, tailor, on admission was exceedingly restless and distressed, walked up and down the ward moaning and groaning and crying out, "Oh, God, I cannot stand this, I cannot stand it." He was one of the most undisciplined and incorrigible patients that we had had to deal with, and it seemed as if it was going to be impossible to get him to co-operate in his treatment.

He stated that he had first started to use heroin three and a half years previously, and that at the time of his admission he had been in the habit of taking as many as 50 tablets ($\frac{1}{6}$ gr.) daily. He gave a history of having for some nights previous to admission suffered from both auditory and visual hallucinations, in consequence of which he would feel terrified and would scream out. No impairment of his general functions could be demonstrated.

In addition to his heroin addiction he smoked two packets of Piedmont cigarettes daily.

He was poorly nourished, but there was no physical disorder of his internal organs, and there were no neurological symptoms. Previous to starting the Towns-Lambert treatment his general health was improved, and in the meantime his cravings were controlled by giving him small doses of morphine and codeine.

During this period he was exceedingly restless, and complained especially of cramps in his stomach.

He took the treatment well, and almost immediately following it became cheerful, active, helpful, and kind to the other patients. He stated that he felt splendid, that he had no

desire for any drug, and that he had no aches or pains anywhere. He told how formerly when he could not get the drug that he would experience a sort of grasping sensation in his stomach, and would feel so desperate that he was ready to steal or do violence if only he could obtain a further supply of the drug.

On his discharge he was recommended to the Hebrew Benevolent Society, who from time to time reported that he was working steadily and efficiently, and apparently had no craving of any kind.

CASE III.—V. K., 37 years, single, photographer, came to the Clinic voluntarily and asked for treatment for the opium habit to which he had been addicted for twenty years. He also gave a history of excessive alcoholism, and of a luetic infection when about 25 years old. When 17 years old he began to smoke opium, but some years later tried to break himself off his habit by substituting morphine. Eventually he got to using morphine sulphate entirely, and up until three weeks previous to admission had been taking about 8 grs. daily. During the last three weeks he had been in such destitute circumstances that he had been drinking the water in which the opium dregs were boiled.

On admission he complained of headache, of a feeling as if hot lead was in his veins, of cramps and pains in his legs, of cold chilly feelings, and of his sleep being disturbed by nightmares.

He answered all questions in detail, seemed exceedingly anxious to obtain help, and no impairment of his memory and general intellectual functions could be demonstrated.

Physically, he showed a typical drug facies, he was pale and anæmic, his cheeks were sunken, he had dark rings round his eyes, and blackened teeth. He was very much under-nourished. His Wassermann reaction with his blood serum was negative. He was given the Towns-Lambert treatment, and during it made no special complaints. Following it he became cheerful and optimistic, helped in the ward work, and seemed anxious in every way to do what was best for himself.

When seen two months after his discharge he still was in

good condition, and stated that he had been entirely free from his habit.

CASE IV.—J. H. L., 26 years, married, salesman, stated that he had first started to use drugs about two years previous to admission. He first took cocaine, then heroin, and latterly morphine. During the six months previous to his admission to the Clinic he had been taking approximately 24 grs. of morphine daily by the mouth and hypodermically.

On admission he was restless, irritable, and difficult to deal with, but otherwise did not show any psychotic symptoms. He had had a good education, and his general intellectual level was well maintained. In addition to his drug addiction he smoked one package of Piedmont cigarettes daily. Physically he was a well-developed muscular man who showed a slight tremor of the outstretched hands, and a slight increase of the tendon reflexes.

He was given the Towns-Lambert treatment, and on its completion he was profuse in his expressions of gratitude, and emphatically stated that in the future he would leave drugs severely alone.

A few months after his discharge it was reported that he was again working steadily, and was abstaining from the use of any drug.

CASE V.—J. S., 48 years, single, waiter, on admission to the Clinic was in a highly nervous condition, seemed anxious and afraid, and admitted that he had been drinking gin excessively. During the last ten years he had been constantly on sprees, and in 1913 had been treated in the Mercy Hospital for alcoholism. He had a good appreciation of time and place, but in giving dates he tended to get confused, his power of retention was poor, and he made mistakes in doing simple calculations. Physically he was a well-nourished man who complained of pains in his legs, showed a marked tremor of his tongue, facial muscles, and hands, and had wide, dilated pupils. He was really on the verge of delirium tremens.

He received the Towns-Lambert treatment, and reacted splendidly. Following it he stated that he felt better than he

had done for many a day, slept well at nights, and was discharged in excellent condition.

When seen six months after his discharge he stated that he had been working steadily ever since, and had had no desire to indulge in alcohol.

The above cases show so well what it is possible to accomplish with the Towns-Lambert treatment that one may now go on to describe the method.

In 1909 Mr. Charles B. Towns, a layman, at an Opium Congress in Shanghai, made his treatment of drug addiction known in all its details. His method was next taken up and presented before the medical profession by Dr. Alexander Lambert, Professor of Clinical Medicine at Cornell University Medical School, New York. In an article published in the *Journal of the American Medical Association* on 25th September, 1909, Dr. Lambert says:—"While the treatment was still unknown to me and before I used it I watched Mr. Towns treat various patients addicted to morphine, cocaine, and alcohol, and found that the claims he made for the treatment were true." At another point he says:—"If some years ago anyone had told me that it was possible to take away the desire for morphine, cocaine, or alcohol in less than five days with a minimum of discomfort and suffering to the patient I should have felt justified in treating the statement with polite scepticism. Such, however, is the fact if the treatment . . . is carefully carried out. I do not doubt that in my turn I shall be met with scepticism and perhaps ridicule, and more especially from those members of the profession who have struggled and toiled to break up the morphine and cocaine habits."

Since that time, in 1911 and 1913 other articles have been published by Lambert confirming his previous statements.

The method as described by Lambert and as used in dealing with the present series of cases is as follows:—

The patient is given five compound cathartic pills (compound cathartic pill (*U.S.P.*) is made up as follows:—Hydrarg. subchlor., 1 gr.; ext. jalapæ, 1 gr.; extr. colocynth co., $1\frac{1}{2}$ gr.; pulv. gambog., $\frac{1}{4}$ gr.; gingerin, $\frac{1}{2}$ gr.), and 5 grains of blue mass, and six hours later, if these have not acted, a saline is given;

after three or four abundant movements of the bowels from these cathartics the patient is given in his usual way, by mouth or by hypodermic, in three divided doses at half hour intervals, two-thirds or three-fourths of the total daily twenty-four hour dose of morphine or opium to which he has been accustomed. Six drops (from a medicine dropper) of the belladonna mixture (tinct. belladonnæ, 15 per cent, 2; fl. extr. xanthoxyli, 1; fl. extr. hyoscyami, 1) are given in capsules at the same time as the morphine, and continue to be given every hour for six hours. At the end of six hours the dosage is increased two drops. The belladonna mixture is continued every hour of the day and every hour of the night continuously throughout the treatment, increasing two drops every six hours until sixteen drops are taken, when it is continued at this dosage; it is diminished or discontinued at any time if the patient shows belladonna symptoms such as dry throat, dilated pupils, redness of skin, or the peculiar incisive voice and insistence on one or two ideas. If the patient has an unusual sensitiveness to belladonna it will usually show itself in the first six or eight hours, and the hourly dosage can be cut down from 2 to 4 drops and raised 1 drop every six hours. If, on the other hand, even 16 drops persisted in for twelve consecutive hours do not give dryness of the throat, the dosage should be raised to 18 or 20 drops every hour until the dryness occurs, and then the amount reduced. At the tenth hour, after the initial dose of morphine has been given, the patient is again given 5 compound cathartic pills and 5 grains of blue mass. If they do not act in six or eight hours a vigorous saline is given, and when they have acted thoroughly, the second dose of morphine, one-half of the original dose, is given, which is usually about the eighteenth hour. Ten hours after the second dose of morphine has been given, that is about the twenty-eighth hour, 5 compound cathartic pills and 5 grains of blue mass are again given. After these have thoroughly acted, at the thirty-sixth hour the third dose of morphine, which is one-quarter the original dose, is given. This is usually the last dose of morphine that is necessary. Again, ten hours after the third dose of morphine, that is the forty-sixth hour, the 5 compound cathartic pills and 5 grains of blue mass are repeated, followed seven or eight hours later

by a saline, and one expects at this time to see the bilious green stool appear. When this appears, after the bowels have moved thoroughly, about eighteen hours after the third dose of morphine, about the fifty-sixth hour of treatment, 2 ounces of castor oil are given.

In treating an alcoholic, the belladonna mixture and the five compound cathartic pills and five grains of blue mass are given simultaneously at the first dose, and then the pills and the blue mass are repeated at the twelfth, twenty-fourth, and thirty-sixth hours. About the forty-fourth hour of the treatment the castor oil is given.

Such a method of treatment sounds most drastic, and on account of the free purgation physicians are apt to think that the great majority of their patients could not stand any such strenuous treatment. In actual practice, however, it is perfectly surprising to see how well even the most weakly and most poorly nourished seem able to go through the treatment: and as soon as it has been completed they begin to gain weight, to sleep well, and to return to their normal condition. In those cases where the patient did complain of great discomfort a few hours in the continuous bath would often prove very soothing, or if the restlessness and distress were specially great, codeine in half to one grain doses was usually quite sufficient to cope with it. Only very rarely was it ever found necessary to stimulate the patient. As soon as the treatment was completed an attempt was made to tone up the condition of the patients by means of baths, tonics, good food, and regular exercise.

In connection with the treatment of these cases there was one other point which interested us considerably, and that was the uniformity with which the heroin cases gave a history of addiction to cigarette smoking, and all with two exceptions seemed to favour one particular brand—the Piedmont cigarette. Lambert has emphasised the fact that in the treatment of every case of drug addiction it is absolutely essential to get the patient to cease the use of tobacco altogether, or else the chance of a relapse will be greatly increased. He explains the matter by saying that nearly all these patients first of all become nervous owing to using tobacco to excess, that then they smoke more to try to steady themselves, and gradually get so nervous and restless that they must have recourse to

alcohol, morphine, cocaine, heroin, or some other potent drug to produce the steadying effect desired. Bearing this in mind, it was interesting to find how frequently one particular brand of cigarette was used; and consequently, thinking that the reason might be due to some substance contained in the cigarette, I wrote to the *Journal of the American Medical Association* in the hope of getting some further light on the subject. My letter was referred to Azor Thurston, State Chemist, Columbus, Ohio, and from him I received a letter, an extract from which states:—"I have not found opium in the Piedmont cigarettes, but they contain, according to my analysis, 3.34 per cent nicotine, and a total ash of 11.98 per cent. This percentage of nicotine is the highest of all brands examined, the average for 26 brands being 1.48 per cent. The Piedmont cigarette papers contained 5.23 per cent of ash, which was below the average of a number of brands, the average ash of all brands of papers examined being 17.06 per cent. The Piedmont papers contained nitrates, which only three others out of the 26 brands did."

The above findings, when taken in conjunction with the frequent history that one gets of cigarette excess, are, I think, quite striking, and seem to show fairly conclusively how important it is to rid the patient of his tobacco habit at the same time as one is attempting to cure him of his other addiction.

As to the results obtained by the Towns-Lambert method of treatment, Lambert reports that 75 per cent of the cases treated by him have remained free from addiction.

At the Phipps Psychiatric Clinic this method was attempted in 40 cases of various forms of drug addiction. In 32, or 80 per cent of these cases, one may say that the treatment was successful in so far as getting the patient freed from dependence on the drug was concerned. Six cases were so undisciplined and had such a bad influence on the other patients in the ward that they were discharged a day or two after admission without being treated. In two cases the treatment was unsuccessful. Of the unsuccessful cases one was a man, 26 years of age, who since the age of 15 had been exceedingly addicted to the use of alcohol. Throughout his school life he had been very unruly and difficult to deal with, and had been expelled from several

schools on account of truancy. During the latter years of his life he had been a ne'er-do-well, and for one year, on account of his alcoholic habits, he had been a patient in the Tennessee State Insane Hospital. During his residence in the Psychiatric Clinic he maintained a sullen attitude, and was discharged after a month's residence in very much the same condition as when admitted.

The other case was that of a physician, 45 years of age, who applied for treatment on account of the fact that for three years he had been addicted to morphine. He did not present any psychotic symptoms, and physically he was in good condition. During the course of the treatment he complained of jerking in his limbs, of pain in his legs, of dryness in his throat, but his pupils did not dilate to the extent common to the other cases. Throughout his stay it was suspected that he must have a private supply of morphine secreted about his person, but this supposition could never be substantiated. When discharged he stated that he felt better than he had done for a long time, that he would sooner blow out his brains than again become addicted to morphine, but he was so profuse in his thanks and compliments that one felt that he was entirely insincere. On the day following his discharge it was learned that he had returned to his old habits.

Although it has been stated that 80 per cent of the cases have been successfully treated, it is not meant to be implied that that number of cases has been "cured." It has been impossible for me to follow the progress of all these cases, but I do know that certain of them have relapsed, partly, no doubt, due to the fact that they were inherently weak to start with, and partly because it was necessary for them to go back to the same surroundings and to the same companions with whom they had been in the habit of associating. It is held to be essential in the treatment of such cases that, after they have been freed from the drug, they should be taken in hand by philanthropic and after-care associations, so that a definite attempt might be made to break the old environmental influences, and thus a lasting and permanent benefit might result. Given a person of average calibre, however, a method of treatment which is capable of freeing him so quickly and with so little discomfort from a grave case of drug addiction must

surely be looked upon as a useful adjunct to our therapeutic armamentarium.

The other method of treatment of drug addictions to which I would now like to direct attention is the atropine-strychnine method as recommended by Purves Stewart, and outlined by him as follows:—

R.—Liq. cinchonæ con.,	. . . . .	24 minims.
Liq. gentian co. con.,	. . . . .	3 „
Sol. strychn. nit. (4 grs. ad 1 oz.),	. . . . .	1 minim.
Sol. atropin. sulph. (1 gr. ad 1 oz.),	. . . . .	1 „
Glycerine,	. . . . .	1 dr.
Aquam,	. . . . . ad	$\frac{1}{2}$ oz.

Sig.—Five times daily in water at three-hour intervals.

In addition to the above, strychnine nitrate ($\frac{1}{4}$ grs. ad 1 oz.), and atropin sulphate (1 gr. ad 1 oz.) are given hypodermically three times a day immediately after meals. The dose of strychnine begins at 2 minims, and is increased by 1 minim every other day until the maximum of 7 minims is reached. The dose of atropin begins at 1 minim, and is increased by 1 minim every other day until the maximum of 6 minims is reached.

First week.—Gradually increase the strychnine solution to 5 minims and the atropin solution to 4 minims.

Second week.—Continue to increase the strychnine solution until 7 minims are given and until 6 minims of the atropin are given.

Third week.—The dose is kept at 7 minims of the strychnine and 6 minims of the atropin.

Fourth week.—Reduce the strychnine to 6 minims and the atropin to 5 minims.

Fifth week.—Reduce the strychnine to 5 minims and the atropin to 4 minims.

Sixth week.—Progressively decrease the dose of strychnine to 2 minims and the atropine to 1 minim, and continue with that up to the end of the sixth week.

I have not had very much experience with this last method of treatment, but several of the cases with whom it has been employed, and whom it did not seem to be advisable to treat with the Towns-Lambert method, have been benefited by it,

and have gradually been freed from their drug addiction. In connection with it, it is essential to keep the patient freely purged or otherwise atropin symptoms will very soon show themselves, and the dosage will either have to be considerably reduced or else the treatment will have to be stopped temporarily. Whichever method is employed, the treatment should be carried out in a hospital, so that the patient may be under control and close observation.

Within the last few months, in the United States, a new Federal law has been introduced taxing and regulating the sale of narcotic and habit-producing drugs and all their compounds. Under the new enactment every firm or individual that sells or dispenses any form of narcotic drug must register with the United States Internal Revenue Department, and pay therefor an annual sum of \$1. Then he must buy from the Department official order blanks on which must be given the facts of each sale, returns for which must be made to the Government. No druggist may buy narcotic drugs without this order and record being kept of the purchase. He may not dispense any such drug without the prescription of a physician for each sale, and without a record being kept of the sale. The Internal Revenue collectors are given power to investigate any cases in which there is a suspicion that undue quantities are being bought or dispensed by druggist or physician.

In conclusion, it cannot be too strongly emphasised that the methods of treatment outlined above must not be looked upon as in any way specific for drug addiction; they are only useful in so far as they free the patient from his symptoms, and thus put him in a position where he can get a chance to readjust himself, and to react to his difficulties in a healthy way.

It is only by the adoption of stringent legal measures governing the sale of narcotic drugs, and by realising the necessity of after-care treatment and supervision for those who have been treated, that we can hope to lessen the vice of drug addiction.

Obituary.

ON SERVICE.

LIEUTENANT WILLIAM DUNSMORE MURRAY, M.B., C.M.GLASG.,
ROYAL ARMY MEDICAL CORPS.

WE regret to announce the death of Lieutenant W. D. Murray, which took place at his residence at Clapham Common on 23rd January. The eldest son of the late Mr. William Murray, coalmaster, Glasgow, Lieutenant Murray studied medicine at Glasgow University, where he took the degrees of M.B., C.M. in 1889, afterwards settling in practice in London. The tragedy of his death at a comparatively early age has been heightened by the news that a son, Second Lieutenant Graham Dunsmore Murray, 12th Northumberland Fusiliers, was killed in France on 26th January, just three days after his father's death.

CAPTAIN ARCHIBALD THOMSON CAMPBELL, M.B., C.M.GLASG.,
ROYAL ARMY MEDICAL CORPS.

WE regret to announce the death of Captain A. T. Campbell, which occurred at his house in Belmont Gardens, Glasgow, on 22nd February. A native of Argyllshire, Mr. Campbell came to Glasgow for the study of medicine, and took the degrees of M.B., C.M. at Glasgow University in 1886. He began practice in the city two years later, and rapidly acquired for himself a prominent position in the north-western district. The time which his busy practice left at his disposal he gave to the work of the various professional organisations, in all of which he occupied positions of distinction. He held at different periods the offices of President of the Glasgow and West of Scotland Branch of the British Medical Association, President of the North-Western Branch of the same Association, and President of the Northern

Medical Association. He was Chairman of the Local Medical Panel Committee under the National Insurance Act, and took a keen interest in the working of the Act. He was also one of the representatives from Glasgow to the British Medical Association in London. Since the beginning of the war Captain Campbell, who held a commission in the Home Hospitals Reserve, R.A.M.C., had been on military service, having been called up at the outbreak of war, and being posted to Maryhill Barracks, where he served until the relinquishment of his duties was forced upon him several months ago by the illness whose fatal termination will be widely regretted by his many friends and colleagues. He is survived by his wife and a family of three.

JOHN GLEN, M.B. C.M. GLASG.,
GRANGETOWN.

WE regret to announce the death of Mr. John Glen, which took place suddenly at Grangetown, Yorkshire, on 4th February. Mr. Glen, who was 73 years of age, was a student of the University of Glasgow, taking the degrees of M.B., C.M. with commendation in 1873. Thereafter he was for two years junior demonstrator of anatomy with the late Professor Allen Thomson, the senior demonstrator at the time being Mr. D. N. Knox, and in this capacity he earned the admiration and regard of his students. Taking up practice in Yorkshire, he speedily won for himself affection and esteem, and in the course of his career filled many positions of importance. He was at one time medical officer of health for Normanby, he was surgeon to the Eaton Hospital and public vaccinator to No. 5 District Middlesbro' Union, and he was a Justice of the Peace for the North Riding of Yorkshire.

ROBERT WILLIAM MIDDLETON, M.B., C.M. GLASG.,
EDINBURGH.

WE regret to announce the death of Mr. R. W. Middleton, which took place at his house in Bruntsfield Place, Edinburgh, on 7th February. Born at Symington in 1853, Mr. Middleton

received his early education at Dumfries Academy, afterwards studying medicine at Glasgow University and taking the degrees of M.B., C.M. in 1878. He then acted as assistant to the late Dr. John Kello, of Biggar, and afterwards spent some time in Paris in post-graduate study. He went to London in 1888, and began there a practice which rapidly increased and gave promise of great success. Four years later, however, his health broke down, and residence in the mild climate of Southern England failed to restore it. He went to Edinburgh about fifteen years ago, and there, though compelled to lead the life of an invalid and for the most part confined to bed, he was well known and much beloved by a small circle of friends by whom his loss will be keenly felt.

SURGEON MAJOR-GENERAL JOHN PINKERTON, M.D. GLASC.,
I.M.S. (RETIRED).

WE regret to announce the death, at the age of 83 years, of Surgeon Major-General John Pinkerton, who died at a nursing home in Glasgow on 11th February. Major-General Pinkerton was a student of Glasgow University, where he took the degree of M.D. in 1855, taking the qualification of L.R.C.S.Ed. in the same year. In that year he joined the Indian Medical Service, and during the Persian War of 1856-57 he served with the Indian Navy. From 1858 to 1861 he was engaged in civil and military duty, and from 1861 to 1893, when he retired, he held many important posts. He was superintendent-general of the vaccination department of the Bombay Presidency from 1868 to 1876, and the first Vaccination Bill in India, which became law in 1877, was drafted by him. From 1876 to 1882 he was in charge of the European General Hospital, Bombay. He was made a Fellow of the University of Bombay in 1868, was twice Dean of its Medical Faculty, and was the first president of the Bombay Branch of the British Medical Association. For five years previous to his retirement he had been at the head of the Indian Medical Service in the Bombay Presidency, and in 1892 he was appointed a member of the Legislative Council. On his retirement he was awarded the good service pension of £100

for meritorious services. In 1894 he was elected F.R.F.P.S.Glasg. for distinction in medical science, and in 1907 he became F.R.C.S.Ed. He was honorary physician to Queen Victoria, to King Edward VII, and to King George V. Major-General Pinkerton lost his only son, Dr. John Pinkerton, in the Russo-Turkish War of 1878, and he is survived by his only daughter, the wife of Dr. Ebenezer Duncan, president of the Royal Faculty of Physicians and Surgeons.

GEORGE VALENTINE, M.B., C.M. GLASG.,
GIRVAN.

WE regret to announce the death of Mr. George Valentine, which took place suddenly at his residence in Girvan on 15th February. Mr. Valentine, who was 68 years of age, was a native of Stonehaven, and studied medicine at Glasgow University, where he took the degrees of M.B., C.M. in 1873. Settling in Girvan after graduation, he was appointed medical officer for the parish, and, upon the formation of the burgh, he was also appointed burgh medical officer. He acted for many years as doctor, under the Northern Lights Commissioners, to the lighthouse-keepers on Ailsa Craig. He is survived by a widow and a family of six sons and two daughters.

CURRENT TOPICS.

GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION.—The annual meeting of the Association was held in the Faculty Hall on Thursday, 10th February, the president, Dr. Leonard Findlay, in the chair. The reports of the treasurer and of the editors of the *Journal* were read and approved, and other business was transacted. The office-bearers for 1915 were unanimously re-appointed for 1916. The following is a list of the gentlemen so appointed:—

<i>President,</i>	DR. LEONARD FINDLAY.
<i>Vice-Presidents,</i>	{ DR. GEO. A. ALLAN. DR. ARCH. W. HARRINGTON.
<i>Editors,</i>	{ MR. GEORGE HENRY EDINGTON. DR. WILLIAM ROBERT JACK.
<i>Editor of "Abstracts,"</i>	DR. ROY F. YOUNG.

Editorial Committee.

DR. A. J. BALLANTYNE.	DR. LEONARD FINDLAY.
DR. JOHN BROWNLEE.	DR. A. A. GRAY.
DR. R. M. BUCHANAN.	PROF. R. MUIR.
DR. E. P. CATHCART.	DR. E. H. L. OLIPHANT.
DR. F. J. CHARTERIS.	DR. J. R. RIDDELL.
<i>Treasurer,</i>	{ DR. W. B. INGLIS POLLOCK, 21 Woodside Place.
<i>Secretary,</i>	{ DR. JOHN ANDERSON, 7 St. Bride's Road, Newlands.

General Business Committee.

DR. J. M. COWAN.	DR. R. T. HALLIDAY.
DR. WALKER DOWNIE.	DR. W. CAMPBELL MACKIE.
DR. G. B. FLEMING.	DR. GEORGE M'INTYRE.
DR. R. S. FULLARTON.	DR. ARCHIBALD YOUNG.
<i>Auditors,</i>	{ DR. W. WALLACE. DR. JOHN SHAW DUNN.

APPOINTMENTS.—The following appointments have recently been made:—

J. M. Huey, M.B., Ch.B.Glasg. (1904), to be Certifying Factory Surgeon for the Millom District, co. Cumberland.

J. R. Grice, M.B., Ch.B.Glasg. (1911), to be District Medical Officer of the Llandilofawr Union.

G. S. Jackson, M.D.Glasg. (M.B., 1890), to be District and Workhouse Medical Officer of the Alnwick Union.

Royal Navy (24th January): Temporary Surgeon J. C. H. Allan, M.B., Ch.B.Glasg. (1912), to *Vivid*, additional, to date 22nd January.

Royal Army Medical Corps (20th January): To be temporary Captains—Temporary Lieutenants J. Lang, M.B., Ch.B.Glasg. (1908); T. B. Marshall, M.B., C.M.Glasg. (1894).

24th January: To be temporary Captain—Major E. P. Cathcart, M.D.Glasg. (M.B., 1900), from unattached list of Territorial Force. To be temporary Lieutenants—J. A. Thomson, M.B., Ch.B.Glasg. (1907); J. Dunbar, M.B., Ch.B.Glasg. (1907); R. D. Bell, M.B., Ch.B.Glasg. (1904); D. Manson, M.B., Ch.B.Glasg. (1909); W. A. L. Marriott, M.B., Ch.B.Glasg. (1908); J. B. Alexander, M.B., Ch.B.Glasg. (1911); D. A. Thomson, M.B., Ch.B.Glasg. (1907).

26th January: To be temporary Lieutenant-Colonel whilst in command of a Field Ambulance—Major S. E. Lewis, M.B., Ch.B.Glasg. (1902).

28th January: To be temporary Captain—Temporary Lieutenant J. Hanson, M.B., Ch.B.Glasg. (1903). To be temporary Lieutenants—A. C. Wilson, M.D.Glasg. (M.B., 1897); T. Winning, M.B., Ch.B.Glasg. (1907).

2nd February: To be temporary Captain—Temporary Lieutenant J. D. Finlay, M.B., C.M.Glasg. (1893).

4th February: To be temporary Lieutenants—M. Campbell, M.D.Glasg. (M.B., 1896); A. D. Moffat, M.B., Ch.B.Glasg. (1914); A. D. Buchanan, M.B., Ch.B.Glasg. (1911); J. Bain, M.B., Ch.B.Glasg. (1905); J. M'F. Grier, M.B., Ch.B.Glasg. (1913).

8th February: To be temporary Lieutenants—G. F. Barr, M.B., Ch.B.Glasg. (1914); T. S. Goodwin, M.B., C.M.Glasg. (1902); J. S. Prentice, M.B., Ch.B.Glasg. (1914).

14th February: To be temporary Captains—Temporary Lieutenants A. Poole, M.B., Ch.B.Glasg. (1911); J. R. Turner, M.B., C.M.Glasg. (1894). To be temporary Lieutenant—J. A. Thoms, M.B., C.M.Glasg. (1888).

R.A.M.C., Territorial Force (19th January): Lowland Mounted

Brigade Field Ambulance—Captain (temporary Major) F. Gracie, M.B., C.M.Glasg. (1892), to be Major.

10th February: Lowland Field Ambulance—Lieutenant R. Kyle, M.B., Ch.B.Glasg. (1915), to be Captain.

12th February: Attached to units other than medical units—Captain S. Martyn, M.B., C.M.Glasg. (1897), to be Major.

Scottish Command Orders (25th January): The following gentlemen have been appointed Civil Medical Practitioners at the places mentioned:—J. MacDonald, M.B., C.M.Glasg. (1886), Motherwell; H. J. Mackintosh, M.B., C.M.Ed., Troon.

14th February: Lieutenant-Colonel A. D. Moffat, M.D.Durh., R.A.M.C.(T.F.), has been appointed commandant of the grouped 3rd Line Depôts of Mounted Brigade Field Ambulances and Field Ambulances of the Scottish Command from 22nd January, 1916. He assumed command of 3/3rd Lowland Field Ambulance on 10th February, and also assumed command of the 3/1st Lowland Mounted Brigade Field Ambulance, 3/1st Lowland Field Ambulance, 3/2nd Lowland Field Ambulance on 14th February. The commandant will act as senior medical officer of the Hawick area, and will be under the orders of the D.D.M.S., Scottish Command, for administration and training, and will deal direct with headquarters on such matters.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS.—At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on 7th February, Mr. Syed Hassan, L.M. and S., Punjab University, was, after examination, admitted (*in absentia*) as a Fellow, *qua* surgeon, not qualified to hold office.

The Faculty, in order to mark their sense of the value of war service given by members of the medical profession, and to facilitate the entry of those who render adequate war service into the Fellowship without unduly lowering the standard of the qualification, have made an alteration in their regulations for the Fellowship examination, which has hitherto been open to registered medical practitioners of not less than two years' standing who pass an advanced examination in two of the principal subjects of medical science. The Royal Faculty have resolved that in the case of those engaged in connection with the war an examination in one of these subjects shall be accepted as sufficient, and that this privilege shall hold good

in the case of candidates coming forward within five years after the termination of the war.

TRIPLE QUALIFICATION PASSES.—At the examinations of the Board of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow, concluded at Edinburgh on 21st January, the following candidates, having passed the final examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:—Thomas Cormac M'Gowan, Claud Aldous Slaughter, Theodore Clement van Derzeil, Alexander William M'Gregor, Charles Kinsley Carroll, George Lynn Pillans, L.D.S., William Lyle Paterson, David Scott Taylor, David Singaravel Luther, and Donald Saunders Graham.

ADMISSION TO THE INDIAN MEDICAL SERVICE.—It was recently announced in the press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the Service would be made by nomination by the Secretary of State. To assist him in making these appointments which, as already announced, will be limited in number to the absolutely indispensable needs of the Service, Mr. Chamberlain has appointed a Selection Committee who will summon and interview such applicants as may appear to be *primâ facie* suitable, and make recommendations for appointment.

Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, London, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and under 32 years of age at the time of application. Particulars regarding pay, promotion, &c., in the Service can be obtained from the Secretary, Military Department.

WAR HONOURS FOR GLASGOW GRADUATES.—Among those mentioned in the last despatch of Viscount French occurs the name of Captain Robert Neil Guthrie, R.A.M.C. Captain Guthrie is a graduate of Glasgow University, where he took the degrees of M.B., Ch.B. in 1906, serving afterwards as house

physician and house surgeon in Glasgow Royal Infirmary under Dr. G. S. Middleton and Mr. Rutherford. Returning to New Zealand, of which country he is a native, he held before the war the post of honorary surgeon to Christchurch Hospital.

Captain Eric D. Gairdner, M.B., Ch.B.Glasg. (1902), R.A.M.C. (T.F.), attached Royal Scots Fusiliers, 5th Battalion (T.F.), has been awarded the French Military Cross for services in Gallipoli. A son of the late Sir William Gairdner, Captain Gairdner himself holds a distinguished position in the profession. He began practice in Ayr in 1905, and is now surgeon to Ayr County Hospital.

NURSES AND THE Y.M.C.A.—Many of our sailors and soldiers have serious cause to be grateful to their nurses, serious because their wounds have often been of a terrible nature, and grateful because these good women have nursed them back to life.

Mrs. Alec-Tweedie's Hut Scheme has grown apace. She has received various contributions from nurses, and now suggests that if nurses in hospitals and institutions will each subscribe 1d. and send her the result to 30 York Terrace, Harley Street, London, W. (cheques crossed London County and Westminster Bank, marked "Nurses Fund"), she thinks it would be a very good idea when sufficient money had been collected to put up a hut for our fighting men and call it "The Nurse."

So many more huts are still required that it would be possible to name some after particular towns, fallen soldiers, or groups of workers like the farmers, the Navy, the nurses, the boiler-makers, or the leather workers.

MIDWIVES (SCOTLAND) ACT, 1915.—The following letter, defining the position of local authorities in relation to the Midwives (Scotland) Act, has been sent by the Local Government Board to local authorities in Scotland:—

LOCAL GOVERNMENT BOARD,
EDINBURGH, 27th January, 1916.

MIDWIVES (SCOTLAND) ACT, 1915.

SIR,—The above Act, which was passed on 23rd December, 1915, came into operation on 1st January, 1916, and the Local Government Board for Scotland desire to draw attention to its provisions so far as they affect Local Authorities.

I. LOCAL AUTHORITIES UNDER THE ACT.

The Local Authorities under the Public Health (Scotland) Act, 1897, are the Local Supervising Authorities for the purposes of the Act, and the Act applies to all districts of Local Authorities within the meaning of the former Act, except such districts as may be excluded from the operation of the Act by order of the Local Government Board for Scotland.

II. POWERS AND DUTIES OF LOCAL AUTHORITIES UNDER THE ACT.

1. *General Superintendence of Midwives.*

Under Section 16 of the Act, it is the duty of the Local Supervising Authority, by themselves, or by their medical officer acting under their instructions—

- (1) to exercise general supervision over all midwives practising within their district in accordance with the rules to be laid down under the Act ;
- (2) to investigate charges of malpractice, negligence, or misconduct, on the part of any midwife practising within their district, and, should a *prima facie* case be established, to report the same to the Central Midwives Board to be constituted under the Act ;
- (3) to suspend any midwife from practice, in accordance with the rules under the Act, if such suspension appears necessary in order to prevent the spread of infection ;
- (4) to report at once to the Central Midwives Board the name of any midwife practising in their district convicted of an offence under the Act ;
- (5) to report at once to the Central Midwives Board the death of any midwife or any change in the name and address of any midwife in their district, so that the necessary alteration may be made in the roll of midwives to be published annually by the Central Midwives Board ;
- (6) to supply to the Secretary of the Central Midwives Board, during the month of January of each year, the names and addresses of all midwives who, during the preceding year, have notified their intention to practise within their district, and to keep a current copy of the roll of midwives, accessible at all reasonable times for public inspection ;
- (7) to give due notice of the effect of the Act, so far as practicable, to persons at the commencement of the Act using the title of midwife, within their district.

2. *Delegation of Powers.*

The same Section further provides that the Local Supervising Authority may delegate, with or without any instructions or conditions as they may think fit, any powers or duties conferred or imposed upon them by or in pursuance of the Act, to a committee appointed by them, and consisting, either wholly or to the extent of two-thirds or more, of members of the authority, and women shall be eligible to serve on any such committees.

3. *Power of Entry.*

Section 17 of the Act provides that for the purpose of exercising the powers of supervision over midwives conferred on Local Supervising Authorities, any officer appointed by such an authority for the purpose may at all reasonable times enter any premises which he has reason to believe to be a lying-in home conducted for profit within the district of the authority, and in which he has reason to believe that a certified midwife is employed or practises, or that a woman not a certified midwife practises in contravention of the Act.

4. *Contributions to General Expenses of Central Midwives Board.*

The general expenses of the Central Midwives Board are to be defrayed out of the fees payable by persons presenting themselves for examination or certificates as midwives in terms of the Act. If such fees are insufficient to defray these expenses, power is given under Section 13 of the Act whereby the deficit may be recovered from the Local Supervising Authorities. The amount of the deficit will be apportioned among such authorities in proportion to the populations of their districts as ascertained at the last preceding census. On receipt of a precept from the Central Midwives Board for the amount so apportioned, the Local Supervising Authority must pay to that Board the amount requisitioned within six months after receipt of the precept or such other period as may be agreed with that Board.

5. *Contribution to Training of Midwives.*

Local Supervising Authorities are by Section 21 authorised to contribute towards the training of midwives within or without their respective areas in such manner and to such extent as may be approved by the Local Government Board for Scotland.

6. *Emergency Fees.*

Where in the case of an emergency a midwife calls in to her assistance a registered medical practitioner the Local Supervising Authority must pay to such medical practitioner a sufficient fee, with due allowance for mileage, according to a scale to be fixed by the Local Government Board for Scotland. The Local Supervising Authority

are empowered to recover the fee from the husband or guardian of the patient. (Section 22.)

7. Annual Report by Medical Officer.

The Medical Officer of every Local Supervising Authority must report annually to that authority on the administration of the Act within the District of the Local Authority, and he must transmit a copy of the report to the Central Midwives Board and to the Local Government Board for Scotland.

III. NOTIFICATION OF PRACTICE BY MIDWIVES.

Section 18 of the Act provides that every woman certified under the Act shall, before holding herself out as a practising midwife or commencing to practise in any district, give notice in writing of her intention so to do and of the address at which she resides to the Local Supervising Authority, and shall give a like notice in the month of January in every year thereafter during which she continues to practise in such district. The notice is to be given to the Local Supervising Authority of the district where the woman usually resides or carries on her practice, but a similar notice must also be given to every other Local Supervising Authority within whose district such woman at any time practises or acts as a midwife, within forty-eight hours at the latest after she commences so to practise or act. Changes of address have also to be duly notified.

IV. EXPENSES OF LOCAL AUTHORITIES.

Any expenses under the Act payable by the Local Supervising Authority shall be defrayed out of the public health general assessment.

A copy of this circular has been forwarded to the Medical Officer of Health.

Copies of the Act may be obtained, either directly or through any bookseller, from H.M. Stationery Office, 23 Forth Street, Edinburgh, price 2d.—I am, SIR, Your obedient Servant,

(Signed) JOHN T. MAXWELL, *Secretary.*

To the Clerk to the Local Authority.

CENTRAL MIDWIVES BOARD.—An announcement in the *London Gazette* of 4th February states that the Central Midwives Board for Scotland has been provisionally constituted as follows:—

Lady Balfour of Burleigh, appointed by the Lord President of the Council.

Sir Archibald Buchan-Hepburn, Bart., appointed by the Association of County Councils for Scotland.

Sir Robert Kirk Inches, appointed by the Convention of the Royal Burghs of Scotland.

Lady Susan Gordon-Gilmour, appointed by the Queen Victoria Jubilee Institute for Nurses (Scottish Branch).

Archibald Campbell Munro, M.B., C.M., D.Sc.(P.H.), appointed by the Society of Medical Officers of Health of Scotland.

Professor Sir John Halliday Croom, M.D., F.R.C.P.Edin., F.R.S., appointed by the University Courts of the Universities of Edinburgh and St. Andrews (jointly).

Professor Murdoch Cameron, M.D., C.M., appointed by the University Courts of the Universities of Glasgow and Aberdeen (jointly).

James Haig Ferguson, M.D., F.R.C.P.Edin., F.R.C.S.Edin., appointed by the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow (jointly).

Michael Dewar, M.D., C.M., and John Wishart Kerr, M.B., Ch.B., appointed by the Scottish Committee of British Medical Association.

Two vacancies on the Board have still to be filled by the Lord President of the Council.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.—The Privy Council has intimated approval of the appointment of Mr. D. L. Eadie, 50 George Square, Edinburgh, as secretary to the Central Midwives Board for Scotland. All communications thereanent should be sent to Mr. Eadie to the above address.

PRESENTATION TO MATRON OF ROYAL INFIRMARY.—The honour recently conferred by His Majesty the King upon Miss Melrose, matron of the Royal Infirmary, in bestowing upon her the Royal Red Cross decoration, was cordially recognised by the nurses of the institutions with which she is connected at a meeting on 27th January, at which they presented her with an amethyst and pearl brooch. The meeting took place at the Royal Infirmary, and was attended by a large number of sisters and nurses.

Sister M'Guire, who presided and made the presentation,

referred to the pleasure the sisters and nurses had upon learning of the honour which His Majesty had decided to confer upon Miss Melrose. Those intimately acquainted with her work in Glasgow knew that her ability for organisation and her advice had been invaluable since the outbreak of the war. They asked her to accept their small gift as a token of their high esteem.

Miss Melrose, in acknowledging the gift, said that while she had been the actual recipient of the decoration, the honour belonged as much to the sisters and nurses as to herself. She had always been proud of her nurses, but never more so than when three of the present staff and five of the former nurses in the Royal were mentioned in despatches for their work at the front. At the same time she was grateful to the nurses who had remained at home, because while they might have won honour abroad they considered that they would be equally useful at home, and had decided to forego all opportunities of glory for the added arduous work of the local hospitals.

A musical programme was afterwards given by several of the nurses.

It will be recollected that in addition to her duties at the Royal Infirmary, Miss Melrose has acted as matron of No. 4 Scottish General Hospital at Stobhill, and also as matron of the military hospital at Merryflatts.

GLASGOW ROYAL INFIRMARY: ANNUAL MEETING.—The annual meeting of the Royal Infirmary was held on 14th February in the Merchants' House, Glasgow, Lord Provost Dunlop in the chair. The annual report presented to the meeting drew attention to the fact that the capital fund had for the second year in succession been seriously encroached upon to meet, along with the combined ordinary and extraordinary revenue, the year's expenditure. The maintenance and administration charges amounted to over £5,000 per month, while the ordinary income amounted to little more than one-half of that sum. Even after applying the sum of £13,070, 9s. 11d. (the net amount received during the year by way of legacies, donations, &c.), it had been necessary to withdraw the sum of £15,428, 18s. 10d. from capital account. The position was becoming sufficiently alarming to call for speedy remedy. The capital funds of the Infirmary, already greatly

reduced by the contribution to reconstruction expenditure, were being further depleted instead of being, as was hoped, increased, and the very life of the institution as a voluntary hospital was now threatened. The managers therefore earnestly appealed for a further and largely increased financial support to the extent of at least an additional £30,000 per annum. Organised subscriptions from workmen might with advantage be more generally adopted. But it was to the general body of the people that the managers looked. There was a large proportion of the community in some cases quite able, and in others easily able, to afford assistance who did not subscribe at all. The managers greatly desiderated some means of bringing home to the citizens of Glasgow and the people of the West of Scotland that it was the duty of every person to make some contribution for the maintenance of such an institution. The ordinary expenditure of £61,750, 6s. 10d. was £3,704, 9s. 9d. in excess of the previous year. This was accounted for by the larger number of indoor patients treated and the higher cost of provisions, coal, drugs, &c.

The managers continued during the year to place at the disposal of the naval and military authorities 150 beds for sick and wounded sailors and soldiers, and these had been more or less continuously occupied during the year without interfering with the ordinary work of the institution. Practically all the members of the medical and surgical staff had been doing military duty. Thirty-eight held commissions in the Royal Army Medical Corps, and twelve were engaged in Red Cross hospitals. During the year Mr. Peter Rintoul, C.A., resigned the office of secretary, which on the invitation of the managers he accepted in February, 1908. The offices of secretary and cashier had now been merged, and Mr. R. Morrison Smith, C.A., had been appointed to the joint position.

The ordinary revenue amounted to £33,250 and the ordinary expenditure to £61,750, leaving a deficiency on ordinary account of £28,499. Extraordinary revenue amounted to £13,944 and extraordinary expenditure to £873, leaving a surplus on extraordinary account of £13,070. The ordinary and extraordinary revenue together amounted to £47,195, and the ordinary and extraordinary expenditure to £62,624, leaving a net deficiency over all of £15,428. In the Ophthalmic Department the

ordinary revenue was £1,821, and the expenditure £2,209, showing a deficiency of £387. The extraordinary revenue of the Ophthalmic Department amounted to £482, and after deducting the deficiency on ordinary account there was a balance of £95.

The admissions to the Infirmary numbered 10,705 against 10,291 in the previous year, an increase of 414; there were 1,058 deaths against 996, an increase of 62, the rate of mortality being 9·9 against 9·7 per cent. The daily average number resident was 741·2 against 678·2. The average residence of those treated to a conclusion was 25·5 days against 23·9. On the whole expenditure the average cost of each fully occupied bed was £80, 13s. 0½d. against £82, 12s. 2¼d. in 1914. The average cost of each patient treated to a conclusion was £5, 12s. 2½d. against £5, 9s. 4¾d. in the previous year.

In the Ophthalmic wards the number of patients treated was 899 against 1,054 in the previous year, and 12,443 patients attended the Dispensary for the first time, against 13,460 in 1914. The total number of attendances at the Dispensary was 38,336. The average residence of in-patients was 12·6 days. At the Schaw Convalescent Home the admissions were 1,289 against 1,308 in the previous year. The daily average number resident was 55·5 against 57·05.

The Lord Provost, in moving the adoption of the report, said he was exceedingly sorry that for the second year in succession there was a serious deficit in the ordinary income. While the claims upon the generosity of the citizens on account of the war had been patriotically responded to during the past year, the citizens must not neglect permanent and old-established institutions which had been alleviating suffering and mitigating distress for many years. Not only were the managers of the Infirmary faced with the responsibility of maintaining a greatly enlarged establishment, but they had been called upon since the war began to undertake national work in the care and cure of wounded soldiers and sailors. He considered it was the duty of every class to see that the managers were provided with sufficient funds to meet the ordinary expenditure, and he would especially appeal to the workmen's committees to continue and, if possible, increase their contributions.

Mr. James Macfarlane, chairman of the Board of Managers,

in seconding the motion, said that if the people were roused to realise the value and the importance of such institutions they would at once recognise that the support given in the past was inadequate, and with very little exertion and without any inconvenience to themselves would put those institutions in a position year by year to meet the current expenditure.

The report was adopted.

Lord Strathclyde, in moving a vote of thanks to the general body of subscribers, said it was plain that there were many in the community who had done less than their duty. When they considered that the deficit on the ordinary income was no less than £28,500, and that even taking into account the extraordinary income, there still remained a deficit of £15,428, every penny of which had to be taken from stock account, the situation seemed to him to be sufficiently alarming to give them all "furiously to think." He observed that the managers made an appeal for £30,000 a year additional revenue. That was a very substantial sum, but having regard to the vast wealth of the community and the overwhelming prosperity which many wage-earners at present enjoyed it was not altogether out of the range of possibility that that large sum might be ultimately secured. Where was this additional revenue to be sought for? They could not deny that the contributions from public works were to all appearance handsome and substantial, but, when they considered the vast industrial population of Glasgow, he thought it was not altogether unwarrantable to expect that a large increase in these contributions might be secured by a more widespread method of organisation, and a more widespread means of bringing home to the working people the needs of that great healing institution. He agreed with the managers that it was to the general body of the people that they must look for this additional revenue. So far as the public works were concerned, they must, however, leave to the employers, the managers, and foremen the method of organisation, merely bringing under their notice the necessity for it. He admitted that the churches had done well, and the only suggestion he had to make in regard to them was that the church-goer should have more frequent opportunities of subscribing—that instead of annual there should be quarterly collections. But these, after all, were methods by which they could secure only a very limited

increase in revenue. They must, therefore, turn their eyes in a different direction. They must pass into the domain hitherto occupied almost exclusively by the lady collector. He did not think they could look for a large increase in the number of lady collectors. But they knew the miraculous power of the press in raising money for public objects, and he believed it was not impracticable that the daily newspapers should give some attention for a limited part of the year to the claims of our great hospitals. A proposal worthy of consideration was the holding of two or three, or probably more, flag days in aid of the Glasgow infirmaries, while another method which had been found efficacious in Edinburgh was the organising of concerts. The last and most hopeful source of revenue which he would suggest was the collecting box taken round from door to door by willing hands, not annually, but at comparatively frequent intervals, employing in this work members of the Boy and Girl Scouts whose efforts would thereby be directed to the instilling of some fresh life-blood into the veins of these old and beneficent institutions.

Mr. Timothy Warren, who seconded, said the real difficulty lay not so much in any decrease in income as in an enormous increase in expenditure. Twenty years ago their expenditure was £30,000 a year; to-day it had increased to £60,000, but there had been no corresponding response on the income side of the account. A few more reports of the kind they were now considering would leave them "absolutely stranded" in a few years, as they would then have exhausted their available capital stock. That was a state of matters which, he thought, was not creditable to Glasgow.

The motion was adopted. The re-election of managers was agreed to on the motion of the Rev. Dr. Laidlaw, seconded by Sir Samuel Chisholm, Bart.

GLASGOW ROYAL MATERNITY HOSPITAL.—The annual meeting of the Glasgow Royal Maternity and Women's Hospital was held on 10th February in the Hospital, Mr. M. Pearce Campbell presiding. The annual report showed a fairly satisfactory financial situation, the general subscriptions having increased by £76, while the growing interest taken in the hospital by employees in public works was evidenced by the fact that their

subscriptions amounted to £728, as compared with £635 in 1914, and £266 in 1911. The deficit on the working of the year amounted to £2,509, but by many generous legacies and donations this had been extinguished. Though the number of cases in 1915 did not fall far short of those in 1914, the amount received from the maternity benefit had fallen from £1,140 to £875. It was fair, however, to say that in the number of cases dealt with during 1915 there were no fewer than 563 wives of soldiers and sailors. These cases the directors agreed to deal with without asking any part of the maternity benefit. There were 1,650 indoor cases, 1,543 outdoor cases, and 452 cases at the West-End branch—a total of 3,645.

Professor Bryce submitted the report of the Medical Committee, and the financial statement was presented by Mr. Joseph Patrick, C.A.

Sir George Beatson, in moving approval of the reports, referred to the Midwives Act for Scotland and the extended Notification of Births Act, two measures, he said, which were of the greatest importance to the welfare of the nation. We had as a nation now awakened to the fact that there must be an economy in human life, especially in the infant stage. The heavy toll of our casualties in the field had come home to us not only as a personal loss, but it had led us to see that the future safety of the nation and its commercial prosperity would be seriously imperilled unless we kept up an increase in the population. What was the organisation that was to be set up to deal with this important matter? There were differences of opinion, but he thought all were agreed that it was upon the basis of the Notification of Births Act that they had to build. Infant mortality was a national problem, and as such the organisation to deal with it must to some extent come under the State, or the municipalities as representing the State. That being so, they might feel that the occupation of an institution such as the maternity hospital was to some extent threatened, because if the matter was taken up by the municipality it must be taken up in its entirety. They would then have municipal maternity hospitals. As to the position of the present maternity hospital, he found in a circular issued by the Local Government Board in England to its county councils and sanitary authorities a statement to the effect that whatever

changes were brought about there must be due recognition of existing institutions. That was very encouraging. Their line of policy therefore should be, above all, efficiency; and he was satisfied that by maintaining the high standard already attained their hospital would have a very great claim to be considered in any changes that might be introduced, and that no government board would allow it to be passed over.

The Countess of Eglinton, in seconding, said the care of the children and the other subjects dealt with in the reports were at all times of the deepest interest, but never had there been a time when there was greater need to recognise their importance. They were only second in national interest to the successful issue of the war. She was pleased to see that the abstract of the Hospital's accounts showed a general increase in subscriptions, especially the subscriptions from employees. She had always felt very strongly that any institution such as that depended largely for its stability upon the number of those interested in it, and that the workmen should take an interest in the Hospital was not only an important element in its support, but it showed a keen appreciation of the work done in it. In a letter she had received from a friend, it was pointed out that when the National Insurance Act was passed one of the points made was that maternity benefit would lessen the mortality among mothers. The mortality among mothers had, however, increased, and since the war began there had been a greater mortality among infants. This was not due to destitution, because wages were bigger and separation allowances were adequate. In the view of her friend, the causes were carelessness, pleasure, dirt, neglect, and maternal ignorance. The last-named was at the root of the evil, and it was a matter in which the ladies' committee of the Hospital could greatly help.

The reports were adopted.

ROYAL HOSPITAL FOR SICK CHILDREN: ANNUAL MEETING.—The annual meeting of subscribers to the Royal Hospital for Sick Children was held in the Hospital on 31st January, Sir John Ure Primrose presiding in the absence of the Lord Provost. The annual report, the adoption of which was moved by the chairman, made a strong appeal for greatly increased subscriptions in order that the facilities of the new Hospital

might be fully utilised. It stated that owing to the war, and the acquisition of Stobhill Hospital for military purposes, the directors had placed four wards at the disposal of the Parish Council for the treatment of children who had to be removed from Stobhill, and after these children left Yorkhill the War Office requisitioned part of the Hospital for the treatment of wounded officers, of whom 113 had been in residence. Owing to many of the medical and nursing staff being absent on naval and military service, and to the impossibility of finding substitutes, the directors feared that if the staff were further depleted there would be serious difficulty in carrying on the work of the institution. The total number of cases treated in the wards during the year (excluding the military) was 2,231. After referring to the work done in the country branch at Drumchapel and in the dispensary, the report went on to show that there was a deficit of £4,736 on the ordinary accounts for the year. The directors recalled that they stated in 1914 that a very large increase in ordinary annual revenue would be absolutely essential if all the resources of the new Hospital were to be fully developed and made available to all the children in Glasgow and the West of Scotland who were sick and poor. While they gratefully acknowledged an increase of £1,174 on the subscriptions received last year (£6,957), they pointed out that the amount was altogether inadequate, and that if the Hospital was to be fully utilised the revenue from annual subscriptions would have to be doubled. The accommodation of the new building was almost three times greater than that of the old, and at the close of last year there were nearly 400 children under 12 years of age waiting for a vacant cot in the wards. The population of the area served by the Hospital numbered several millions; the subscribers to the Hospital numbered a few thousands.

In moving the adoption of the report, Sir John Ure Primrose said that some measure of anxiety was being felt by the directors owing to the financial strain of the present situation. The Hospital was better equipped than any of its kind in the United Kingdom, and with the exception of that in Great Ormond Street, London, was the largest. At present there were 400 children under 12 years of age waiting for admission. Under the direction of the Hospital they had also a country

home and a dispensary where an average of 154 children visited daily. He believed that the war in many instances might restrict the power of the giver, and they knew that a paternal Government was looking to those who were making excess profits, and legitimately taxing them; but it was not unreasonable to hope that among those who in times of stress and difficulty, and even subject to the excess profits tax, were still having large increment of wealth, would rise many who, with loyal hearts and princely generosity, would remember an institution such as this, which lay at the very foundation of their national life, and give liberally because of their abundance. To the ladies who had acted so loyally by the institution in the past he appealed that they should make the coming "Rose Day" outshine all its predecessors, and thus encourage the directors in adequately providing for the further use of the Hospital. He believed that Queen Alexandra specifically indicated that this was the institution which was to profit by the assistance given on Rose Day.

Mr. James H. Nicoll, who seconded, remarked that after victory there would remain for this country a very real and stern struggle to repair the awful wastage of life and material resources going on now. In that struggle one of our main assets—it might be that time would prove it the main asset—would be the provision by the nation of a large and healthy juvenile population. Towards the securing of such an asset the Hospital was doing noble work.

The report was adopted.

The Rev. Hubert L. Simpson moved a resolution appealing for an increase of £6,000 in the annual subscriptions to enable the great resources of the new Hospital to be fully developed. The chairman, he said, had referred to excess profits, but if rumour was true a good deal of money was being made by the class whose children benefited by an institution like this, and he thought a determined effort should be made to reach them this year. He thought there were many in that class who had never realised the pleasure and the privilege of giving to charitable associations.

Colonel R. C. Mackenzie seconded, and the resolution was adopted.

On the motion of Professor Milligan, thanks were awarded to

the Ladies' Committee and the honorary staff. Office-bearers were re-elected on the motion of Mr. James B. Kidston, the Duke of Montrose being re-appointed president.

Mr. C. K. Aitken, in moving a vote of thanks to the chairman, said he looked forward with confidence to the future. He could hardly believe the people of Glasgow would allow the Sick Children's Hospital to fail in its purpose for want of money.

GLASGOW CENTRAL DISPENSARY.—The annual meeting of the subscribers to the Glasgow Central Dispensary was held on 28th January in the Dispensary, 30 Richmond Street. Mr. John Garroway presided. The hon. secretary, Mr. George C. Chapman, read the directors' report. It stated that a total of 5,703 cases had been treated during the year, 3,551 being new patients and 2,152 second and subsequent consultations. In addition, there had been 18 operations under anaesthetics and also 4,392 dressings by Nurse Baird, for whose services the directors and staff were indebted to the Higginbotham Sick Poor Nursing Association. All the surgeons on the staff were with His Majesty's Forces, and several of the medical members of the staff were unable to give any time to the work of the dispensary owing to their taking the place of doctors who were on service. The ordinary income for the year was £391 and the expenditure £419, leaving a deficit on the year's working of £28.

On the motion of the chairman, seconded by Mr. J. M. Easton, the report was approved.

In supporting a vote of thanks to the staff, Dr. Archibald Sloan said he had the privilege for some years of being a member of it, and knew the amount of work that was done. It was gratuitous service. He knew from personal experience that there were no cases of abuse in the institution, as was the case with some others. He considered there was no institution more deserving of public support than the Central Dispensary.

On the motion of Mr. George M'Lellan, the following directors were reappointed:—Mr. John Garroway, Dr. Archibald Sloan, Dr. A. K. Chalmers, Mr. John M. Easton, Mr. James Smith, Dr. Thomas Kay, and Dr. William George Black.

of Glasgow Women's Private Hospital was held on 28th January at the Hospital, 11 Lynedoch Place. Dr. Maitland Ramsay presided. Miss Sylvia W. Murray, the hon. secretary, submitted the thirteenth annual report, in which reference was made to the removal of the Hospital from the premises at 27 West Cumberland Street, which it had occupied since its foundation, to the new premises in Lynedoch Place, and it was stated that increased accommodation had been secured. During the year 94 cases had been treated. The income for the year amounted to £542, and the expenditure was £757.

The chairman said he had been impressed by the large number of major operations which were performed in the Hospital, and also by the comparatively small cost at which so much good work had been accomplished. The aim of the Hospital was to help women who, when they were ill, desired to be treated by a member of their own sex.

Dr. Annie McGorie moved the adoption of the report. Professor Stevenson, in seconding, said that where men and women were doing the same kind of work it was desirable that there should be spheres marked off for both as distinct as possible. That had advantages in various ways. It prevented competition of an undesirable kind, and in certain professions and occupations, at all events, it maintained the standard of payment on both sides.

The report was adopted, and office-bearers were re-elected.

GLASGOW CONVALESCENT HOME.—The fifty-first annual meeting of the subscribers to the Glasgow Convalescent Home at Lenzie was held in the Religious Institution Rooms, Buchanan Street, on 18th January, Lord Provost Dunlop in the chair.

The annual report, submitted by the secretary (Mr. R. G. Ross), stated that the number of patients admitted to the home in 1915 was 1,487, compared with 1,418 in 1914. The patients, as in former years, were sent to the Home by the Royal and Western Infirmarys free of charge and without a subscriber's line, and by the general public on subscriber's lines. The total expenditure for the year in the annual revenue account had been £3,831, against £3,124 in 1914. Extraordinary expenditure, amounting to £645, had been incurred on a new drainage system. The whole of the extraordinary expenditure had been debited

to revenue, which had resulted in there being a debit balance of £1,031, 6s. 7d. in the revenue account which had to be drawn from the capital fund.

The Lord Provost, in moving the adoption of the report, said that without such an adjunct to the hospitals as was furnished by the Home at Lenzie the poorer people would require to go back to their own homes, and in many cases filter back again to hospital; but with the fresh air and good treatment that they received at the home they were enabled to return to their work strong and invigorated. As to the financial position of the Home, as revealed in the report, he hoped the people of Glasgow would rally to its support and ensure that such a beneficent institution as that should not suffer. The working classes of the country were at present earning better wages than had probably ever been known in the annals of Glasgow, and, since they reaped great benefit from such a Home as that one, he had no scruples in suggesting to them where their duty lay. He hoped that the usefulness of the Home would be in no way impaired in the future.

Major James Hope seconded, and the report and accounts were adopted.

On the motion of Sir John Ure Primrose, Bart., seconded by ex-Deacon-Convener Service, managers were elected for the ensuing year; and a vote of thanks to the directors and officials was awarded on the motion of Dean of Guild Hedderwick. A similar compliment to subscribers and donors was also passed.

SCOTTISH NURSES' ASSOCIATION.—The annual meeting of the Scottish Nurses' Association was held on 27th January in the Masonic Hall, Glasgow. Mrs. Strong, who presided, said the Association was formed in consequence of an attempt to obtain legislation for Scottish nurses distinct from the bill for nurses in the United Kingdom. There was now a consensus of opinion that there should be a common bill for the United Kingdom, and they had joined hands under the name of the "Society for the State Registration of British Nurses" for the purpose of securing such a bill. At the same time the Association preserved its individuality for the protection of the interests of its members. She referred to the proposal by the Honourable Arthur Stanley to establish a voluntary college for nursing

under the Board of Trade. Presumably, London would be chosen for such a college, and she did not think it would supply the needs of the nurses. Voluntary classes for women who wished to qualify as nurses had been in existence in Glasgow since 1893 in connection with the Royal Infirmary, but, except by the nurses of the Royal Infirmary, the classes had not been taken advantage of. Still, the State could enforce uniformity by having a common curriculum for preparatory education, making it unlawful for any hospital to receive nurses for practical training without a State certificate.

Miss M. Russell Smith, interim secretary, submitted the report, which bore that there had been a falling off in the subscriptions last year. These amounted to £13, 12s., compared with £27, 18s. in the previous year. The Association had, however, at the close of the year a balance in bank of £90, 14s. 5d., so that the financial position was quite sound.

Dr. Elizabeth Gilchrist, in moving the adoption of the report, argued in favour of one system of entrance to the nurses' register, and that could be secured through the agency of a central nursing board. The report was approved.

Dr. Mc'Gregor-Robertson spoke of the work of the Association, and office-bearers were appointed.

Gratification was expressed in the report at the honour done to two members of the Association, Miss Denton and Miss Ritchie Thomson, who had been mentioned in despatches by Lord French.

MEDICAL INSPECTION OF SCHOOL CHILDREN.—At a meeting of Glasgow School Board, held on 10th February, under the presidency of Dr. Dyer, chairman of the Board, the sixth annual report on the medical inspection of children attending the schools of the Board was presented by Mr. Grant Andrew, who gave a summary of its main features. He explained that the report dealt with the year ended on 31st July, 1915, and stated that during that period 24,611 children were medically examined—11,974 boys and 12,637 girls. Under the head of nutrition, he added, 8,622 girls and 6,549 boys were considered to be above the average, and only 214 of both sexes were reported as very badly nourished. The proportion of children with decayed teeth was still very high. No fewer than 5,487 children had five or

more decayed teeth. Though there were noted 1,971 cases of rickets, the percentage of cases of rickets and of rachitic deformity admitted to schools for the physically defective showed a gradual diminution. In 1909-10 the percentage was 58·2 per cent, and in 1914-15 the percentage was 39·1 per cent. Though the total number of underfed children noted was 57, as compared with 41 in 1913-14, the improvement was marked when compared with 422 underfed children in 1909-10. The number of ill-clad children noted last year was 244, as against 800 in 1909-10. Medical treatment was given for ear, eye, teeth, and skin diseases. The report emphasised the well-known fact that the diseases dealt with were in the main preventable, and were due largely to unhealthy surroundings, improper methods of living, and to ignorance. Every encouragement should be given to preventive measures even if these should disturb preconceived notions and even recognised customs, for surely prevention was better than cure.

SANATORIUM TREATMENT IN LANARKSHIRE.—The housing problem and its relation to the treatment of consumptive patients formed the subject of discussion at a meeting of the Lanarkshire Insurance Committee held on 19th January in the County Buildings, Glasgow. Colonel R. King Stewart presided.

Mr. Joseph Sullivan, in moving approval of the Sanatorium Benefit Sub-Committee minutes, said they continued to receive and to deal with applications from many insured persons suffering from tuberculosis. They found an increasing number of cases where patients formerly discharged applied for re-admission to the sanatorium, and in many of these cases the patient was then in a more advanced stage of the disease. This was a disquieting feature of the problem, and it would be necessary to give the most careful consideration to it. The weakness of the scheme would appear to come in after the patient left the sanatorium. Their experience showed that the housing conditions were often unsatisfactory, and this, coupled with the carelessness and heedlessness of the patient, made it almost impossible for him to maintain the improvement in his condition which was the result of his treatment in the sanatorium. To meet this it was essential that a scheme should be framed which would ensure constant supervision over the

home conditions and the state of health of the patient. Probably it would be necessary to form After-Care Committees in the county, the members of which would undertake to interest themselves in these cases and work in co-operation with the panel doctors and the public health staff. Such a scheme, however desirable, and indeed necessary, could hardly be put into operation until after the war. At one time it was thought that it was scarcely the duty of committees like theirs to take up the question of housing, but in view of the congestion and overcrowding which neutralised the benefits of treatment in sanatoria he thought they ought, if possible, to put some pressure on the proper authorities.

Mr. John Robertson said it was evident that if they were to get the best results from the sanatoria there must be some improvement in the housing conditions.

Notice of the following motion was given by Mr. Sullivan:—
“That in view of the large sums of money being spent on sanatorium treatment, this committee begs to call attention to the state of housing in Lanarkshire and also to the decrease in the number of new houses being erected, which is aggravating the problem of dealing with tuberculous patients.”

The chairman, in submitting the minutes of the Finance Sub-Committee, said the National Insurance Commissioners estimated that 20 per cent of the insured population had enlisted—that was 25 per cent of the male population. They had no means at the moment of checking this calculation, but they were of opinion that, so far as Lanarkshire was concerned, this was an over-estimate. The clerk had received to date 7,000 notices that insured persons in Lanarkshire had enlisted, but this number was obviously much below the correct figure.

LITERARY INTELLIGENCE.—Those interested in the surgical advances made in the war will welcome a *résumé* of the subject. *Surgery in War*, by Major A. J. Hull, F.R.C.S., R.A.M.C., is an attempt in this direction. Sir Alfred Keogh, K.C.B., has written the preface, and Lieutenant-Colonel E. M. Pilcher, D.S.O., the introduction, while other contributors write on subjects with which they are specially conversant. Numerous x-ray plates and diagrams elucidate the text. The book will be published immediately by Messrs. J. & A. Churchill.

REVIEWS.

Yellow Fever Bureau Bulletin. Supplement Volumes I and II. Reports on Questions Connected with the Investigation of Non-Malarial Fevers in West Africa. Published by the University Press, Liverpool.

THESE two bulky volumes contain the records of an immense amount of laborious work, conducted frequently in the face of very great difficulties by investigators working under the Yellow Fever Commission (West Africa). The work is chiefly in connection with yellow fever. The first volume is largely taken up by reports on endemic cases of yellow fever, and epidemics and descriptions of various districts. The work has been thorough and painstaking, and the reports are well illustrated by plates and charts. The second volume contains a great deal of interesting and important research. Of particular interest is the report of the work on "Experimental yellow fever in laboratory animals," by Harold Seidelin and Andrew Connal (Glasgow). These workers have succeeded in transmitting the yellow fever parasite, *paraplasma flavigenum* (Seidelin) to guinea-pigs and monkeys by direct inoculation of blood, and the infection has been carried *seriatim* through twenty-three guinea-pigs. Parasites identical with those found in the human blood in yellow fever were found in the peripheral blood of the infected animals. The authors have found in various internal organs of the infected animals, especially in the lungs, elements which they regard as division forms of *paraplasma flavigenum*. They obtained no conclusive results by mosquito experiments or blood cultures. Thomson, in a report on the examination of the blood of twenty-five normal guinea-pigs for the presence of "Seidelin bodies," states that he found bodies resembling these yellow fever parasites in all but four. He suggests that they may be artefacts, and indicates various other possible sources. Beautiful coloured microphotographs in a further paper by Seidelin certainly do not

suggest that the bodies discovered by him are artefacts. The coloured illustrations of Seidelin's paper on "Histological lesions observed in laboratory animals infected with yellow fever" deserve a special word of praise. The high standard indicated in these papers is maintained in the many other interesting reports, and it is with regret that one hears that the *Bulletin* is likely to cease for lack of funds.

The Etiology of Typhus Exanthematicus. By HARRY PLOTZ, PETER K. OLITSKY, and GEORGE BAEHR. Reprinted from the *Journal of Infectious Disease*. 1915.

THIS monograph deals with the etiology of typhus from the bacteriological standpoint. By means of an anærobic method of blood culture the authors have succeeded in isolating a bacillus in pure culture from epidemic and endemic typhus fever. Their experiments on animals and their serological work appear to prove that this bacillus is the cause of typhus. The results are certainly convincing, and further work on the subject will be awaited with interest. The book is well printed, and is illustrated by one plate. It should appeal to all physicians, and especially to those engaged in fever work.

Fibrositis (Gouty, Infective, Traumatic), So-called Chronic Rheumatism, including Villous Synovitis of Knee and Hip, and Sacro-Iliac Relaxation. By LL. JONES LLEWELLYN, M.B., and A. BASSETT JONES, M.B. London: William Heinemann. 1915.

IN this large volume the authors deal very exhaustively with certain aspects of the wide group of diseases usually classed as "rheumatic." They have thrown overboard the old term "chronic rheumatism," and have replaced it with the newer name, "fibrositis." Their reasons for so doing are perhaps best given in their own words:—"While the causal factors are diverse, their pathological influence is expended on the same

anatomical structure—the *fibrous* elements. Herein, to our mind, lies the most cogent argument that can be adduced in favour of displacement of the term ‘chronic rheumatism’ by that of ‘fibrositis.’ For the former appellation, always indefinite, seems of late to have become even more so, while the word ‘fibrositis’ at any rate gives to the affection, as it were, ‘a local habitation and a name.’ Moreover, while this suggested substitute emphasises and impresses on our mind the actual site of the anatomical lesions and their inflammatory character, yet it in no wise commits us to any unwarrantable assumption as to its more intimate pathogeny. These are advantages not to be despised, for in this way we escape from the thralldom of that fallacious conception of the term ‘rheumatism’ as being self-explanatory, and therefore final.”

There can be little question that fibrositis has proved itself a convenient term for every-day use, but whether it should be elevated into a formal designation is at least arguable. Fibrosis is a reaction of the tissues to the chronic irritation caused in them by microbes and toxins; it is a very common and general occurrence in all organs, notably in the kidney, liver, and lung, where it is called cirrhosis; and it seems a doubtful innovation formally and definitely to limit by name a general and well-known morbid change to those instances in which it happens to occur in the fibrous tissues of the muscles, bones, and joints. The pathological changes in inflamed fibrous tissue are the same in all organs of the body, and there seems no good reason why they should be called fibrositis in one case and not in another. Further, it is well to remember that fibrositis is not a disease, but merely the result of preceding microbic infections or of injury, and is the equivalent in nomenclature of such terms as diarrhoea, pleurisy, adhesions, cystitis, and so on, conditions where the prognosis and treatment depend largely, and very often essentially, on the original cause rather than on the local symptoms.

In classifying the contents of their work the authors say that “three main divisions constitute the skeletal framework,” viz., (1) infective fibrositis, (2) traumatic fibrositis, (3) villous synovitis and sacro-iliac relaxation. The first of these is subdivided into (*a*) articular fibrositis, (*b*) myo-fibrositis, and (*c*) neuro-fibrositis; and the others are also each sub-divided into

three lesser groups, while many of them are again sub-divided with a detail calculated to bewilder most readers.

Diagnosis, differential diagnosis, prognosis, and treatment are very fully and carefully discussed under each heading. There are a large number of excellent original illustrations, which greatly help to elucidate the text.

It is impossible in a short review to do justice to the great detail and care which the authors have bestowed upon their work, and especially in collecting the clinical and literary material for it. It shows a fulness of knowledge and experience only to be obtained by years spent in active clinical touch with a large number of patients, and forms the most comprehensive treatise yet published on the subject with which it deals.

Diseases of the Nervous System. By H. CAMPBELL THOMSON, M.D., F.R.C.P. Second Edition. London: Cassell & Co., Limited. 1915.

DR. CAMPBELL THOMSON'S manual of *Diseases of the Nervous System* was favourably reviewed in these pages on its first appearance in 1908, and the demand for a second edition shows that the verdict then expressed has been endorsed by the medical public. There has been considerable progress in many departments of neurology during the interval, and the incorporation of more recent acquisitions has led to an increase in the size of the book by some seventy pages. The section on syphilis of the nervous system has been recast in the light of contemporary research, and tabes and general paralysis now find their appropriate place in it. New chapters have been added on the general functions of the brain, the examination of the higher nervous system by the application of experimental psychology, the sympathetic system, and the paths of infection of the central nervous system. The section dealing with the general classification of neurons has been enlarged, and many plates and figures have been added. The new edition will be found a reliable, clear, and accurate introduction to the study of diseases of the nervous system.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

EDITED BY ROY F. YOUNG, M.B., B.C.

MEDICINE.

A Case of Heart-Block, with Recovery. By E. W. Bridgman, M.D., and John T. King, Jun., M.D. (*Johns Hopkins Hospital Bulletin*, December, 1915).—Few cases of complete heart-block, with Stokes-Adams' syndrome and complete recovery following treatment, have been reported. The case described in this paper has been very thoroughly investigated, both clinically and by polygraphic and electro-cardiographic tracings and electrophonograms.

The patient, a negro, aged 38 years, presented complete heart-block, with Stokes-Adams' syndrome. The Wassermann reaction was strongly positive. Vigorous antisyphilitic treatment was instituted—mercurial inunctions and 50-grain doses of potassium iodide thrice daily. In less than five weeks he developed practically normal conduction time, and his symptoms disappeared. The Wassermann reaction was negative on two occasions four months later.

Many observers who have discussed the clinical findings in heart-block have denied the audibility of auricular sounds, while others, especially His, Thayer, Hirschfelder, and Leurs have repeatedly commented on hearing them. The electrophonograms which illustrate the paper show auricular sounds during complete block, and after normal rhythm had been resumed. The time of the auricular sounds is just after the onset of auricular systole, and no sound is apparent at the end of auricular systole.—ARCHD. W. HARRINGTON.

Observations upon Complement-Fixation in the Diagnosis of Pulmonary Tuberculosis. By Charles F. Craig, M.D. (*American Journal of the Medical Sciences*, December, 1915).—The author has tested the blood of 166 patients suffering from pulmonary tuberculosis. In addition, the blood of 150 syphilitics, as well as of 100 patients suffering from other diseases, was tested. The blood of 150 normal individuals was used for controls. The general technique employed for the complement-fixation test for tuberculosis was that used in making the Wassermann test in the author's laboratory. The following conclusions are arrived at:—

1. Complement-binding antibodies are present in the blood serum of both active and clinically inactive tuberculous infections.

2. A polyvalent antigen prepared from several strains of the human tubercle

bacillus has been found to give excellent results in complement-fixation for tuberculosis.

3. With the test described, complement-fixation gave a positive reaction in 96.2 per cent of cases of active tuberculosis and in 66.1 per cent of the cases of clinically inactive tuberculosis.

4. The test was negative in normal individuals and in patients suffering from other diseases, with the exception of two patients infected with syphilis, in whom symptoms of a coincident tuberculous infection were also present.

5. The test does not give positive results with the blood serum of syphilitics, in whom there is no coincident tuberculous infection.

6. The reaction when positive is specific, and apparently indicates the presence of an active tuberculous focus, although there may be no symptoms of the disease present.

7. Positive results are obtained in a large percentage (66 per cent) of clinically inactive cases of pulmonary tuberculosis, and such a result indicates that though it may be quiescent the infection has not disappeared.

8. The results obtained with the test are practically as good as those obtained with the Wassermann test for syphilis.—ARCHD. W. HARRINGTON.

The "Sugar" Content of the Spinal Fluid in Meningitis and other Diseases. By Arthur H. Hopkins, M.D. (*American Journal of the Medical Sciences*, December, 1915).—The method employed by the author for estimating the "sugar" of the cerebro-spinal fluid is Bang's recent micro-method for the determination of blood sugar. Only three or four drops of fluid are required. In the majority of cases the Fehling test was applied at the time of Bang's test. The author found that 1 c.c. each of the copper and of the alkaline solutions diluted with water to 15 c.c., and the addition of exactly equal parts of this solution and the fluid, gave fairly constant relative results in all cases in which there was not a great increase in the protein content. The fermentation test was used in a few cases with positive results, and in twelve cases Bang's method was controlled by Benedict's new colorimetric method. Estimations were made on 141 cases of various diseases. The author comes to the following conclusions:—The consensus of opinion, based on recent literature, is that glucose is the principal reducing substance in the cerebro-spinal fluid. Its concentration in health is slightly lower than that of the blood sugar. Meningitis shows the greatest disturbance in this relationship, there being a pronounced hyperglycemia associated with just as pronounced a drop in the sugar content of the fluid. This drop is evidently due to the activity of the invading micro-organisms. In diabetes the sugar content of the fluid is almost as high as that of the blood. In infections such as pneumonia there may be hyperglycemia without apparent change in the cerebro-spinal fluid. The reducing substance in the fluid is frequently increased in uræmia, a condition in which hyperglycemia also occurs. A slight increase in the sugar concentration of both blood and cerebro-spinal fluid occurs in some cases of epilepsy and other nervous conditions. Syphilis often reveals lower figures than any other condition except meningitis.—ARCHD. W. HARRINGTON.

SURGERY.

A Standardised Treatment of Wounds. By Wm. O'Neill Sherman, M.D. (*American Journal of Surgery*, December, 1915).—Although the subject of treatment of wounds may seem to be of a very elementary nature, yet the author considers that the large percentage of cases becoming septic makes attention to the matter of very great importance. Septic complications may be due to the nature of the injury or to carelessness on the part of the patient, either in failing to seek treatment or in not allowing treatment to be carried out properly. It is to be feared, however, that the surgeon is not altogether blameless, as in too many cases his technique leaves much to be desired. The attention given to aseptic and antiseptic details should be as great in any accidental wound as in, say, an abdominal operation incision.

In the course of the article the author discusses the factors to be taken into consideration before a line of treatment is adopted, then proceeds to describe various lines of treatment—one to be chosen according to the nature of the case. Finally, he gives statistics of his results in the treatment of over 77,000 cases.

His principal method of preparing the wound is to apply dry, sterilised gauze to the wound itself, then to cleanse the surrounding parts with tincture of green soap and sterile water. Hair-bearing areas are shaved for at least 2 inches from the wound, and grease is removed with benzine or gasoline. The wound itself is now washed with the green soap and sterile water, and irrigated with 1 in 2,000 bichloride solution or with Ochsner's solution (75 per cent saturated solution of boric acid, 25 per cent alcohol). Foreign bodies and fragments of devitalised tissue are removed with sterilised instruments. The principal forms of dressing are wet and dry. The first consists of gauze soaked in Ochsner's solution, and the second of dry gauze after tincture of iodine has been applied to the parts. Variations of treatment are described, but the above were used in the majority of his cases.

The most important figures in the statistics of results are those relating to cases cleansed by green soap, alcohol, and gasoline, with irrigation by solution of bichloride, and dressed with dry gauze; 55,191 were so dealt with, and only 75 showed infection, a percentage of 0·0013.—CHARLES BENNETT.

The Treatment of Septic Wounds with Ichthyol and Glycerine. By C. W. Duggan (*The Practitioner*, January, 1916).—The author is not aware of any literature relating to the treatment of septic wounds by ichthyol. He uses glycerine as a cheaper vehicle than lanoline or vaseline. Nine of the most septic cases in a Territorial Hospital were treated with this substance, with results entirely satisfactory. The advantages claimed for this preparation are that there is practically no irritation of the wound; dressings do not adhere; dressings need not be changed oftener than once, or, in special cases, twice, in twenty-four hours; the strain in nursing is lessened; and the patient's period of residence in hospital is curtailed.—CHARLES BENNETT.

DISEASES OF THE EYE.

"Hemianopsia as a Result of Injuries During War" is the title of a very interesting paper by Terrien and Vinsonneau in the *Archives d'Ophthalmologie*, November-December, 1915.

The writers have only seen three cases in the course of seven and a half months, during which period they have had under their care 1,352 patients, and have been consulted in 8,702 other cases.

The principal interest of the cases is in the nature of the defects produced by injuries of similar nature. In the three cases seen there was right homonymous hemianopsia, viz., the right half of the visual field was blind due to injury to the left visual cortical area. Unfortunately, owing to various circumstances, over which the writers had no control, the history of the injury and subsequent operative treatment is very defective.

In the three cases which form the subject of the paper, the left side of the brain was injured by a bullet wound at its posterior and inferior part. Thereafter followed, in each case, a period of unconsciousness, and when this passed away the soldier discovered that he was very nearly blind of both eyes. Trephining was carried out in all cases, and thereafter the vision soon cleared up to a certain stage, but hemianopsia remained. There was no other symptom of importance; the eye movements, internal and external, remained perfect, and there was no deafness or loss of other sense.

The writers point out that in each case the vision of the right eye is much worse than that of the left eye, and that the remaining part of the visual field (in each case again) of the right eye is much more restricted than that of the left. The fields of vision for colours are restricted in a manner corresponding with that of the fields for white.

In Case I there was total colour-blindness of the right eye only, whilst the left eye had normal colour perception. In Case II colours were perceived easily with both eyes, but green was mistaken for blue. In Case III the colour vision was imperfect and the patient could distinguish red, not green, blue, nor yellow.

The authors lay particular stress on the fact that in all three cases there was a moderate degree of macular visual defect in the eye of the injured side (average V.A.L. $\frac{6}{10}$), whilst there was a very marked diminution of macular vision in the eye of the side opposite to the brain lesion (average V.A.R. $\frac{1}{4}$). They attempt to account for this fact, and suggest three hypotheses:—

1. There may normally be a difference in importance between the crossed and the direct macular bundles. This is disproved by the fact that several cases are recorded in which the macular vision was not affected as above noted.
2. The visual defect may be due to word-blindness. This is disproved by the fact that there was no word-blindness in any of the cases.
3. That a hæmorrhage of the opposed cortical centre has destroyed or compressed the macular centre.

This, they say, is the most probable explanation, and coincides with the concentric contraction of the visual fields which is almost the rule in cases of hemianopsia of cortical origin.

It does not, however, correspond with the variation which is formed between the vision of the right and left eye of different patients, and is not in accord with the doctrine of almost symmetrical decussation of the right and left macular bundles, and their corresponding expansions upward in the cortical macular centre.

If the upward expansions are as regularly coupled, as they are thought to be, two by two, right and left, then, in cases of partial lesions of the macular centres, the reduction of vision should be equal on the two sides, but it is not so. If, on the other hand, the coupling be not so exact as is believed, but the macular fibres coupling with cells representing a wide area of cerebral cortex, there is room for variation in the proportion of one and other sides damaged by a lesion.

The importance of this point is, of course, in regard to the question of cerebral localisation in cases of hemianopsia, as it is only in cases where the lesion is in the cortex that variation of macular visual defect can accompany hemianopsia.

This, then, forms a supplement to Wernicke's hemiopic pupillary reaction as a localising symptom.

The paper is interesting and important in so far as three cases almost exactly similar are discussed together.—LESLIE BUCHANAN.

Books, Pamphlets, &c., Received.

Diseases of the Throat, Nose, and Ear, by William H. Kelson, M.D., B.S., F.R.C.S.Eng. Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. 1915. (8s. 6d. net.)

A Manual of Surgical Anatomy, by Lewis Beesley, F.R.C.S.Edin., and T. B. Johnston, M.B., Ch.B. London: Henry Frowde and Hodder & Stoughton. 1916. (12s. 6d. net.)

The Primary Lung Focus of Tuberculosis in Children, by Dr. Anthon Ghon. English edition. Authorised translation by D. Barty King, M.A., M.D. Edin., M.R.C.P.Lond. and Edin. With 72 text illustrations, 1 black and 1 coloured plate. London: J. & A. Churchill. 1916. (10s. 6d. net.)

Saint Thomas's Hospital Reports. New series. Edited by Dr. J. J. Perkins and Mr. A. C. Ballance. Vol. XLII. London: J. & A. Churchill. 1913.

"First Aid" to the Injured and Sick: An Advanced Ambulance Handbook, by F. J. Warwick, B.A., M.B., and A. C. Tunstall, M.D., C.M. Ninth edition, revised. Bristol: John Wright & Sons. 1915. (1s. net.)

Questions on First Aid to the Injured and Sick, by F. J. Warwick, B.A., M.B., and A. C. Tunstall, M.D., C.M. (To be used in connection with the ninth edition of "First Aid to the Injured and Sick," by Warwick and Tunstall.) Bristol: John Wright & Sons. 1915. (6d. net.)

Back Injuries and their Significance under the Workmen's Compensation and other Acts, by Archibald M'Kendrick, F.R.C.S.E. Edinburgh: E. & S. Livingstone. 1916. (2s. 6d. net.)

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDED 19TH FEBRUARY, 1916.

	WEEK ENDING			
	Jan. 29.	Feb. 5.	Feb. 12.	Feb. 19.
Mean temperature, . . .	44·2°	43·1°	39·0°	38·1°
Mean range of temperature between highest and lowest,	9·2°	8·6°	8·7°	8·6°
Number of days on which rain fell,	7	6	6	6
Amount of rainfall, . . ins.	1·03	0·65	1·56	1·73
Deaths (corrected), . . .	302	271	349	331
Death-rates,	14·4	13·0	16·7	15·8
Zymotic death-rates, . . .	0·8	0·8	1·4	1·6
Pulmonary death-rates, . .	3·4	2·9	3·6	4·5
DEATHS—				
Under 1 year,	54	46	43	51
60 years and upwards, . .	71	81	120	88
DEATHS FROM—				
Small-pox, . . . . .	...	...	...	...
Measles,	9	5	12	18
Scarlet fever,	2	5	6	4
Diphtheria,	3	5	7	3
Whooping-cough,	2	...	1	...
Enteric fever,	2	...	2	1
Cerebro-spinal fever, . . .	...	3	2	6
Diarrhoea (under 2 years of age),	6	2	1	4
Bronchitis, pneumonia, and pleurisy,	53	34	55	50
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Cerebro-spinal meningitis, .	...	4	9	4
Diphtheria and membranous croup,	25	41	49	43
Erysipelas,	37	21	29	22
Scarlet fever,	97	123	117	114
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	5	5	3	2
Phthisis,	40	42	31	43
Puerperal fever,	7	7	3	4
Measles,*	212	251	256	302

* Measles not notifiable.

THE
GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

GAS GANGRENE IN THE PRESENT WAR.*

BY DR. M. WEINBERG, PARIS.

MR. CHAIRMAN, LADIES AND GENTLEMEN,—The committee of the “Dr. James Finlayson Lectureship” has done me the honour of asking me to lay before you the results of my recent researches on gas gangrene. I accepted this invitation with pleasure. I must confess, however, that my knowledge of English is so bad that I consider it very bold of me to deliver this lecture in your language; but we are in war time, and in war time audacity is not only permitted but even rewarded. So I hope that I can count upon your indulgence. I am all the more glad to speak for the first time of my researches in Great Britain, as it was in a British Military Hospital that I commenced my first study of this subject.

In the month of September, 1914, a few days after the battle of the Marne, Professor Cummins, of the British Headquarters, impressed by the great number of deaths caused by

* Being the “James Finlayson Lecture” delivered before the Royal Faculty of Physicians and Surgeons of Glasgow on 29th February, 1916.

gas gangrene amongst the wounded, found it necessary to take prophylactic measures. He applied to Professor Roux, Director of the Pasteur Institute, asking him to send one of his collaborators to make a bacteriological enquiry on the spot. Dr. Roux charged me with this mission.

I went to the British front, and it was there that I observed the first case of gas gangrene. My first bacteriological researches were made on the material gathered in the British Military Hospital at Versailles. Since then I have studied many cases in different military hospitals, both in the rear and at the front.

Although gas gangrene has been known for a very long time, and although we find the description of it in all classical treatises, the majority of surgeons had a very confused notion, at the beginning of the war, of this terrible complication of wounds. It is easy to understand, therefore, the reason why this disease provoked so many discussions in the surgical societies both in England and in France. Surgeons did not at all agree upon the clinical picture of gas gangrene. They tended to make this diagnosis every time they observed in a bad wound, gas infiltration having a tendency to extend rapidly.

I do not attempt to describe gas gangrene from the clinical point of view. My object is simply to bring before you the results of the bacteriological and experimental researches. However, to make myself clear, I am obliged to bring before you a rough picture of that disease.

We can distinguish two principal forms of gas gangrene—the first I would call the classic form, because its description corresponds to that which is found in surgical literature; and the second, the toxic form. Let me first describe a case of classic gas gangrene of the leg.

Private B., wounded at the front, was brought to the British Military Hospital at Versailles twenty-four hours after he was wounded. His foot and the lower two-thirds of the leg were dark in colour and cold. The wound was partly in the gangrenous and partly in the healthy portion of the leg. The interior of the wound was dark red in colour, and the discharge had a putrefactive odour. The leg and the thigh were swollen as far as the junction of the middle and upper two-thirds.

The superficial veins were distended, and the skin was discoloured and bronzed; at the same time, on palpation one could feel crepitation around the wound. The general condition was fair, but the temperature reached 102.5° F. The patient was fully conscious. In a very few hours the crepitation extended all over the leg and thigh; at the same time four or five big blebs appeared on the thigh, containing dark red liquid, and the temperature rose to 104° F. It was decided to amputate immediately in the middle of the thigh. Unfortunately, in spite of this radical treatment, gas extended over the whole trunk up to the neck, and the soldier died the same night. In the two hours before his death this patient suffered from dyspnoea, but he was fully conscious up to the very end. This is a feature which is always present in gas gangrene, and is extremely distressing to those treating the case.

This case shows that the principal symptom is that of gas development occurring with extraordinary rapidity, and although this is usually an extremely bad symptom, it is not always the case. Sometimes the very extensive and rapid gas infiltration is produced by microbes of slight pathogenicity, which remain in the wound and show no tendency to become generalised. In those cases surgical treatment is successful.

The gangrene of the limb is not a necessary feature of gas gangrene. Very often the starting point of grave gas infection is a small gangrenous focus caused in the musculature by the shell. In such a case the evolution of gas may be as great as in the case already described, but often the surgeon, by timely incisions and properly applied treatment, can save the limb.

There is another form of gas gangrene in which the predominating symptom is oedema, which can be so considerable as nearly to mask the gas infiltration.

Sergeant B. was admitted into a French Military Hospital forty hours after he was wounded, having been exposed for twenty-four hours between the French and German lines, after an attack and counter-attack. His arm was not dressed until twenty-six hours after he was wounded. On admission, it was found that the wound was on the anterior surface of the middle third of the fore-arm. The gas crepitation was slight round the wound; but we were struck by the oedema, which

was very marked, and extended to the middle of the arm. There was no bronzing, but the skin was pale with prominent veins. It was a solid œdema, and crepitation was felt only close to the wound. Incisions were made on both sides of the arm and the wound washed with hydrogen peroxide, but, in spite of that treatment, the œdema extended to the shoulder and chest, and the patient died twenty-four hours later, without showing any extensive crepitation. The patient, again, was fully conscious to the end.

Sometimes one can feel only slight gas infiltration immediately around the wound, even up to the termination of a fatal case. Sometimes the infiltration is so deep in the muscles that it is difficult to perceive it on the surface, and is only discovered when the muscle is incised.

Now I must mention that the putrid odour so frequently found in both these forms of gas gangrene is not necessarily a symptom of the case, and at the same time bears no relation to the gravity of the case. This is explained, as will be shown afterwards, by the fact that the putrid odour is caused in most cases, not by the pathogenic agency of the gas gangrene microbes, but by other organisms of lower pathogenicity.

I might mention that surgeons have described a few cases of very severe gas infection caused by a bullet passing through the limb, leaving an almost imperceptible wound.

BACTERIOLOGY.

Since the beginning of the war there has been a great deal of bacteriological research in order to determine the agent or agents causing gas gangrene. Sometimes when the discharge from a bad case of gas gangrene is examined, it is found that only one organism is present (Fig. 1). This microbe is the *B. aerogenes capsulatus* described by Welsh. The usual name now for it is *B. perfringens*. These cases in which *B. perfringens* only is found are exceptional. In nearly all cases it is associated with other organisms.

The second slide (Fig. 2) shows a case where *B. perfringens* is found in the discharge with diplococcus and an anaerobic bacillus of no great pathogenicity, but producing much gas. You will see that in the same case the discharge from the muscles taken far

from the wound after the incision shows again the *B. perfringens*, diplococcus, and the slender bacillus known as "cœur jaune." But it is more usual to find in the discharge from the muscles the *B. perfringens* with the diplococcus only. This patient died, and you see here that in the blood I found *B. perfringens* alone.

There are many cases of gas gangrene in which we find in the wound *B. perfringens* associated with many more organisms. So in the slide before you, you see (Fig. 3) one of the cases where *B. perfringens* is found with the ordinary agents of suppuration, such as diplococcus, streptococcus, and *B. proteus*, and you will see that there, too, is the *B. sporogenes*. We must specially mention the *B. sporogenes* because it is often found in the wounds, and it is this microbe which generally gives the putrid character to the wound.

My first investigations of gas gangrene made in the British Military Hospital at Versailles have shown me that the greatest number of gas gangrene cases were caused by *B. perfringens*. I was very glad to be able to make this statement to Sir Almroth Wright, which he, with many other British and French authors, afterwards confirmed. According to my experience up to the present the *B. perfringens* is found in nearly two-thirds of cases of gas gangrene or gas phlegmon. These results agree with researches made previous to the war and recently resumed by Simonds.

There is another combination of microbes which is found in the classic form of gas gangrene, and in which the bacillus of malignant œdema (vibron septique) is the chief pathogenic organism. Slide 4 (Fig. 4) shows a discharge, the bacteriological flora of which demonstrates this point. Here we had a fatal case of gas gangrene terminated by a septicæmia caused by vibron septique. The slide shows among the diplococci, streptococci, and a few *B. perfringens*, many slender bacilli, the sporing organism in the form of clostridia, i.e., vibron septique. You see on the same slide a bacillus which is more slender than the vibron septique, one of the "cœurs jaunes." In the discharge of the muscles of the same case we found only anaerobic microbes, chiefly vibron septique, *perfringens*, and a few bacilli. The hæmoculture gave a pure culture of vibron septique.

In a hundred cases of gas gangrene and gas phlegmon that I examined I found vibriion septique only in four cases. So in my experience vibriion septique is a relatively rare agent in gas gangrene. Many authors, however, mention this microbe as being very frequently the agent of gas gangrene, but as they have not made a complete study of the microbes they call vibriion septique, the evidence of the presence of this organism cannot be considered as conclusive. I believe that in most cases the organism mentioned as vibriion septique was confused with *B. sporogenes*, which has the same morphological characters, and, like the vibriion septique, is motile. Sometimes we find in the flora of the classic form of gas gangrene a new species, which we have described with M. Séguin under the name of *B. œdematiens*.

This anaerobic microbe is polymorphic. Its typical characteristic is the formation of a toxin which, if injected into a guinea-pig, produces a special white œdema.

But this microbe is very rare in the classic form of gas gangrene; some strains found are not very pathogenic. When the wound is affected by a very toxic strain of this microbe the classic form is changed, the symptom of œdema being predominant, and we observe instead of the classic form the toxic form.

In the toxic form the *B. œdematiens* is found with the same microbes as those generally associated with *B. perfringens* and vibriion septique in the classic form of gas gangrene. This slide (Fig. 7) shows a case in which the *B. œdematiens* is found with *B. perfringens*. In another case (Fig. 8) we find the same toxic microbe associated with *B. sporogenes*, and in the third case you see (Fig. 9) the same bacillus is associated not only with *sporogenes*, but with diplococcus and a "coeur jaune." This wounded soldier died, and his blood gave a pure culture—as you see—of the *B. œdematiens*. The *B. œdematiens* causes the toxic form of gas gangrene, but it is not the specific agent of that form. There are other anaerobic microbes which can cause the same variety of gas gangrene, for M. Sacquépée has described a bacillus, also toxic and producing œdema in cases of gas gangrene, with the same clinical symptoms that we have observed in the toxic form of gas gangrene caused by *B. œdematiens*. In the same form we found also a special

anaerobic microbe which we describe with Séguin as *B. fallax* (Fig. 6), because it is an organism easily confused with other microbes with which it has certain characteristics in common. I must mention that I found other œdema-producing microbes which I have not yet had time to identify.

We have only once observed a case of a mixed form of gas gangrene in which the symptom of œdema and the symptom of gas production were both very prominent. In that case we found the association of *B. œdematiens* with *B. perfringens*. The patient died from septicæmia caused by *B. œdematiens*. The hæmoculture shows that septicæmia is very frequent in the classic form of gas gangrene and rare in the toxic form, especially if the latter is due to several toxic microbes. Another slide shows a typical case in which the wounded soldier died of an intoxication due to three toxic microbes without septicæmia being present. As this slide shows, we found in the discharge from the wound and from the muscles the *B. œdematiens*, the vibrion septique, and *B. fallax*. The soldier died. The blood taken half an hour after death and cultivated under the best conditions remained sterile.

These examples of gas gangrene that I have described to you show clearly that the bacteriological flora of that disease is composed mostly of organisms we generally find in intestinal flora. We must add that this flora is exactly the same as that we often find in wounds which are not complicated by a grave gas infection. It is often extremely complicated. I am even convinced that in many cases there are species, perhaps important, which escape isolation. The difficulties are, first, that certain species do not grow easily in the media used; secondly, that the colonies of different microbes present in deep agar identical forms. In order to demonstrate to you these difficulties I will show you the slide which represents the different aspects of the colonies of *B. œdematiens* in deep agar. You see that *B. œdematiens* gives many different forms, some of which resemble those of vibrion septique, others those of *B. sporogenes*, and even those of *B. tetani*. It is the same in the case of organisms which form lenticular colonies in the same solid media. In the slide before you, you see the different aspects of colonies formed by the group we call "cœur jaune." They are characteristic—oval- or heart-shaped, amber coloured,

finely granulated. In the cleft of the heart can be seen a small excrescence, from which grows a tuft of fine entangled filaments. Like the arborescent colonies, these heart-shaped colonies are common to many different organisms. So if we study completely one case of gas gangrene, it is necessary to examine a large number of colonies presenting an identical aspect in deep agar. That is the principal reason why the study of nearly all cases of gas gangrene is very long.

EXPERIMENTAL REPRODUCTION OF GAS GANGRENE.

Now that we know to some extent the flora of gas gangrene, the next step is to determine which organisms play the principal rôle in the evolution of that disease. It is evident that we can only assign the pathogenic rôle to organisms which produce in animals the same symptoms observed in men.

Let us consider first the classic form of gas gangrene. It is very easy to establish experimentally that the *B. perfringens* reproduces in the guinea-pig most of the symptoms observed in the wounded. When we inject in the thigh muscles of the guinea-pig one fatal dose of *B. perfringens*, we produce a gas phlegmon which ends in a fatal septicæmia. A few hours after injection one can feel crepitation which extends progressively to the abdomen. Sometimes the skin is raised in blebs by a reddish serous discharge; death quickly follows, sometimes in eight to twelve hours. At the autopsy when the gas phlegmon is incised, a great quantity of gas escapes, often with a putrid smell; the muscles are of a dirty grey colour, and we find sometimes far from the gas—for instance in the axilla—œdematous foci of toxic origin without any organisms being present. The extremely rapid course of the gas gangrene sometimes observed in man and in animals is easily explained by the susceptibility of certain individuals towards the toxin of that microbe. Indeed, when we standardise the toxin of *B. perfringens*, we often kill in a few minutes certain guinea-pigs by intravenous injection of 1 or 2 c.c. of toxin, although many other of these animals injected with the same dose show no serious symptoms.

We can produce also in the guinea-pig with vibrion septique the chief symptoms of the classic form of gas gangrene.

There is one point to which I must draw your attention. The vibron septique, although a gas-forming microbe, develops in the tissues much less gas than *B. perfringens*. This accords with my observations, because in three cases of gas gangrene, with much development of gas, vibron septique was associated with *B. perfringens*, or with "cœur jaune"—that is to say, the organisms which produce a great deal of gas. In the fourth case in which I found vibron septique associated with *B. œdematiens*, clinically it was a toxic form of gas gangrene in which the gas symptom was very slightly marked.

It is still easier to reproduce experimentally in animals the toxic form of gas gangrene with *B. œdematiens*. When we inject into the thigh muscles of guinea-pigs cultures of various strains of that microbe, we reproduce in these animals a toxic œdema which develops progressively up to the abdomen, and which masks, more or less completely, the gas infiltration. The muscles, red and hyperæmic, have less gas infiltration the more toxic the strain employed for injections.

It is easy also to reproduce the mixed form of gas gangrene by injecting into the animals a mixture of the *B. perfringens*, or strain of "cœur jaune," with the *B. œdematiens*. We can here observe the development of a very extensive œdema with production of much gas.

Neither is it difficult to reproduce a putrid variety of every clinical form of gas gangrene.. It is enough to inject with the pathogenic microbe (*B. perfringens*, vibron septique, or *B. œdematiens*) the *B. sporogenes*—that is to say, the organism chiefly found in the putrid form of gas gangrene in man. We then observe at the point of injection a gangrenous focus with a very putrid smell and the formation of white blebs. The same bullous form has been observed in man infected by *B. sporogenes*.

ETIOLOGY.

The experimental conditions by which we produce gas gangrene in animals differ from those we find in the wounded.

To produce this disease in the guinea-pig we must inject, for instance, $\frac{1}{4}$ c.c. of the culture of *B. perfringens* or $\frac{1}{10}$ or $\frac{1}{20}$ of vibron septique.

The amount of microbes thus injected is far greater in the majority of cases than that which enters a wound from contamination of clothes or earth taken in by projectiles.

On the other hand, if we examine a wound a very short time after it has been received, we sometimes find only a very few microbes of a pathogenic species. Nevertheless, in spite of early surgical treatment, gas gangrene may develop. They must therefore have found especially favourable conditions for their development.

The dissection of limbs amputated for gas gangrene, together with certain clinical observations and experiments on animals, have enabled us to determine what these conditions are. First, the gangrene of a limb is not caused by the microbes of gas gangrene. Here you see a picture of a leg affected by gas gangrene. The gangrene has extended to the greater part of the leg. The dissection of this leg showed that the gangrene is caused in this case by complete obliteration of the popliteal artery by the projectile having severed the artery immediately before its division. Here it is a mechanical agent which has stopped the circulation of the leg.

In the other case of gas gangrene which I saw the same day at the British Military Hospital at Versailles the gangrene had extended only to the lower third of the leg and foot, and in this leg the anterior and posterior tibials and the peroneal arteries were obliterated by an inflammatory clot caused by non-gas-producing organisms.

The gangrene produced by vascular obliteration forms an excellent soil for the development of gas infection. Certain clinical observations made on the wounded in this direction are as conclusive as experiments on animals.

There is a harrowing story of a French major who was wounded at the battle of Champagne. This officer was wounded in the fore-arm and in the popliteal space. His wound of the fore-arm was serious and complicated by a fracture of the ulna. This, however, healed in six weeks. The small wound in the popliteal space was not considered serious. The discharge from the wound contained only diplococci and staphylococci, and only very few *B. perfringens*. To find one *bacillus perfringens* it was necessary to examine several fields. About two months after he was wounded an aneurism of the

popliteal artery was noticed, and the surgeon decided to tie the femoral artery. Two days after the ligature typical gas gangrene developed, and when I was called in a few hours before his death I found the patient in a septicæmic condition. A pure culture of *B. perfringens* was obtained from his blood.

There is another case which developed almost similar conditions to the above, but the gas-producing organisms were fortunately not very pathogenic.

A soldier had been treated in the military hospital at the Grand Palais in Paris for three months for a compound fracture of the tibia by a piece of shell. An arterial aneurism was then noticed in the calf. The surgeon tied the popliteal artery in the morning, and as the result was not satisfactory, at midnight he ligatured the femoral. The patient developed an enormous gas affection involving both legs and the trunk as far as the neck. Fortunately for the soldier the gas-producing organism was not very pathogenic, and no organisms were found in the affected tissues away from the wounds. The leg was amputated and the soldier recovered, although the gas infiltration persisted for three weeks.

Thus we see that the alteration of the tissues, and especially of muscle, following vascular obliteration is most favourable to the development of gas-producing organisms. It is not necessary to have an extensive gangrene of a limb: the local destruction of the tissues by the projectile is sufficient to produce a starting-point for gas infection.

Experimentally, it is very easy to show how artificial injury of muscle and hæmorrhage favour the infection in question. Thus, if you lacerate the muscles of a guinea-pig with a needle, or cause a slight hæmorrhage, the injection even of a weak strain of *B. perfringens* rapidly causes gas phlegmon. This disintegration of muscles, which is so favourable to the development of gas gangrene, is not only produced mechanically; we have found that it is produced by certain organisms which are introduced by the projectile.

We have found with M. Séguin in the discharge from certain wounds of soldiers affected by gas gangrene two different species of anaerobic microbes. The one species disintegrates muscle without producing any smell; the second produces a distinctly

putrid gangrene of muscle. So if you inject 2 or 3 c.c. of a culture of this second microbe, the next day the muscle is dissolved, a reddish liquid being produced and the bone bared. If we associate one of these two organisms with a gas-producing microbe which has lost its pathogenicity, the gas infection develops rapidly.

The few facts which I have just set forth show conclusively that the most favourable conditions for the development of a gas infection are the obstruction of large blood-vessels or the local destruction of muscular tissue by mechanical or biological agents.

TREATMENT.

Now, how should we treat a case of gas gangrene? We have previously established that the flora of gas gangrene is the same as that of almost every wound, and that, on the other hand, a wound may become, sooner or later, sometimes even a very long time afterwards, the starting-point of a grave gaseous infection.

It is, therefore, evident that every good treatment of wounds is a preventive treatment of gas gangrene. The wound, to be well treated, must be treated with the least possible delay. It is only possible to do this when the wounded are removed very quickly behind the lines.

After the battle of the Marne the rapid evacuation of the wounded could not be effected: the result was that the number of cases of gas gangrene was so large that there was hardly a military hospital in which there was not a case of this disease. Dr. Ombredanne treated by himself many hundreds of cases in the hospital of Verdun.

Now that the evacuation of the wounded is considerably improved, we find relatively a less number of cases of gas gangrene, even when the number of the wounded is considerable. It is obvious that this notable decrease in the number of cases of gas gangrene is due, too, to the experience acquired by surgeons since the beginning of the war in the treatment of wounds.

There would not be time enough for me to review all the different treatments of wounds proposed by surgeons. I wish only to mention that all surgeons are agreed that the most

essential condition of efficacious treatment is immediately to open the wound as widely as possible, to extract the projectiles and particles of clothing, to cut away all gangrenous tissue, and to remove all the fragments of bone when a fracture is present. This treatment is combined with continual or frequent irrigation with normal saline solution, hypertonic saline solution (alone, or with carbolic acid), or various antiseptics (zinc chloride, very weak solution of silver nitrate, magnesium chloride, quinine chlorhydrate, &c.). Good results have also been obtained by superheated air, and by intravenous injection of salvarsan.

Now, we must specially mention the use of Leclainche et Vallée serum and that of different vaccines, which certainly help the organism to overcome the infection. The polyvalent serum of Leclainche et Vallée seems to have given particularly good results in wounds infected specially by streptococci.

At the beginning of the war we prepared an anti-*perfringens* vaccine, which gave us good results in certain cases of subacute gas gangrene and in certain wounds, in the flora of which the *B. perfringens* was the most pathogenic microbe. The same treatment has been tried by Wright and his colleagues, who associated the *B. perfringens* with *streptococci*. Other authors prepared an auto-vaccine with the aerobic organism of the wound.

In my opinion, the best auto-vaccine is one prepared with all the organisms, aerobic and anaerobic, that are found in the wound to be treated. Such a vaccine cannot be prepared by the classic method—that is to say, by heating the microbe at 55° to 60°, because the spores resist that temperature. To avoid this difficulty, we treat the mixture of organisms with iodine, a method already employed by Ranque et Senez in the preparation of antityphoid vaccine. It is extremely important for the wounded to be treated as quickly as possible.

To do that we prepare *l'auto-raccin iodé total* (omnivalent iodised auto-vaccine) with the discharge from the wound. This vaccine can be prepared in one to two hours, that is to say, the wounded can be treated immediately after their admission to hospital. Several injections of this vaccine are made daily or every two days, and during that time a complete bacteriological investigation of the case can be made, and, if necessary,

a new auto-vaccine can be prepared with pure cultures of the isolated microbes.*

It is always necessary to accept with a certain reserve the results obtained by vaccine therapy. Nevertheless, we have seen certain cases in which the action of the *auto-vaccin iodé total* was indisputable. In these cases the vaccine was used only when the local and general condition of the patient became worse in spite of large incisions and copious antiseptic treatment.

The surgical treatment of gas gangrene at the earliest manifestations is the same as that of wounds not complicated by gas infection. In the case of gangrene of a limb, amputation is always necessary. Where amputation is not considered necessary, many surgeons apply the actual cautery over the whole extent of the invaded area. Unfortunately, many cases of gas infection are fatal in spite of all treatment. In order to attempt to save such cases we are trying to prepare active serums with the three most pathogenic organisms of gas gangrene—*B. perfringens*, vibriion septique, and *B. œdematiens*.

It would have been very interesting to have prepared anti-toxic serum for all these organisms. It is impossible for *B. perfringens*, as its toxin is very slightly active. The serum of the sheep injected with a toxin of *B. perfringens* for three months is able only to neutralise a few fatal doses of that microbe. That is why the anti-*perfringens* serum that we prepared is anti-microbic. The horse received increasing doses of non-heated *B. perfringens*. Now it is able to withstand a weekly injection of microbes obtained by centrifugalising of one litre of broth. Although the horse has absorbed during the year such a great quantity of microbes, his serum is not so active as I should have expected: 1 c.c. of this serum neutralises only 200 fatal doses of *B. perfringens*.

Although the activity of that serum is relatively small, yet its use in certain cases of gas gangrene was certainly beneficial. I shall mention only fifteen cases of gas gangrene in which the serum was tried, because in these cases the complete bacteriological investigation was possible.

* A few days ago my attention was drawn to a work of Nesfield (*Indian Med. Gazette*, 1914), who had the idea to employ for the same purpose the pus (of the wound) treated by carbolic acid.

This serum was without any efficacy in five cases of septicæmia by *B. perfringens*; but, in five other cases which were bad, but not complicated with septicæmia, the intravenous injection of this serum was rapidly followed by amelioration of the symptoms, both local and general. I was called to the Hospital St. Michel in Paris to examine a soldier with a compound fracture of the thigh, with gas gangrene. The wound had been freely incised the day before, but, in spite of that, the general condition was worse and crepitation was perceived above the patella at some distance from the wound. I injected intravenously 22 c.c. of the serum anti-*perfringens*. The patient had a rigor for an hour, probably an anaphylactic reaction (he had been injected sometime previously by an antitetanic serum). The next day there was improvement and the crepitation disappeared.

I would mention one other case that I saw at the British Military Hospital at Versailles. It was a patient of Captain Rahilly. He called me in, as the case was desperate.

The general condition was very bad, but there was no septicæmia. I injected, the first time, 20 c.c. of the serum; the next day the general condition was no worse, and I again injected 37 c.c. of the serum. After the second injection there was marked improvement, and after four days he was considered out of danger.

There is no time to go into details of the other cases. Suffice it to say that the bacteriological study has shown me that the anti-*perfringens* serum has had a favourable influence in those cases of gas gangrene in which the *B. perfringens* was the chief pathogenic organism of the flora.

The antitoxic serum of vibrion septique was prepared by Miss Raffael and Mr. Frasey by injection into a horse of a toxin prepared with the vibrion septique from a rabbit. We prepared the same serum with a toxin of vibrion septique which caused gas gangrene in a man; 1 c.c. of this serum neutralises 500 to 1,000 fatal doses of toxin.

The anti-*œdematiens* serum that we prepared with Séguin on sheep is also very active. Since our first researches, we have obtained with *B. œdematiens* a very active toxin which kills a guinea-pig with a dose of $\frac{1}{200}$ to $\frac{1}{400}$ c.c. This leads us to hope we will be able to prepare a very active anti-*œdematiens*

serum from a horse. We have reason to believe that the anti-toxic serum obtained with the toxin of vibriion septique or *B. œdematiens* will have a greater preventive than curative action. From experiments on animals we find that these toxins fix themselves so rapidly to the nervous system that it is very difficult to cure an animal even half an hour after one fatal dose of toxin injected intravenously.

These facts, however disappointing, have not discouraged us from further investigations. The curative value of the antitetanic serum is very inconstant; it is, however, established that its preventive use has saved many lives of our soldiers in this war. It is, indeed, the results obtained by the preventive treatment of tetanus which show us the line we have to take in similar researches.

It is true that the number of the pathogenic organisms of gas gangrene increases as technique improves and research continues. At the same time the problem grows more complex. This makes it the more interesting, and the solution does not appear to be impossible. First, it is not necessary to prepare serums against all the pathogenic microbes found in gas gangrene. It is sufficient to retain only the species most universal and at the same time most pathogenic. At the present moment these number but three or four—*B. œdematiens*, *B. perfringens*, vibriion septique, and, perhaps, the organism described by M. Sacquépée. The ideal would have been to prepare on the same horse an antipolytoxic serum, active at the same time against all those organisms. Unfortunately, the few experiments made in this direction have shown that it is excessively difficult, if not impossible. It is possible to avoid that difficulty by preparing, separately, serums active against each of these pathogenic species, then mixing the serums so obtained. This will be as easy to manipulate as simple antitetanic serum.

I consider that the attention of bacteriologists should be directed to the subject of these mixed serums if they wish to contribute actively, in conjunction with surgeons and medical officers of health, in the fight against gas gangrene. The task is hard, but realisable; it is a question of patience, perseverance, and time.

I have finished laying before you the results of recent researches on gas gangrene. I hope that the efforts made in this direction are not in vain, and that they do not present only a purely theoretical interest.

If they confirm the great importance of intestinal flora, if they show that there is in the ground, in mud, and in dung a great number of new microbes, very pathogenic for mankind and sometimes even as toxic as the *B. tetani*, they permit us, on the other hand, to understand the etiology and the evolution of the different forms of gas gangrene, and lead us to hope that we are on the way to find a rational treatment of that terrible complication of wounds.

Our conviction is, as we have already said, that it is necessary to prepare active serum against the most pathogenic microbes we find in the wounds. Unfortunately, the preparation of such serums is very long.

I sincerely wish that the early victory of the Allies will prevent us from finishing this part of our work before the end of the war.

ILLUSTRATIONS.

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FIG. 1.—*Classic form of gas gangrene.* The discharge from the wound shows only the *B. perfringens* and leucocytes.

FIG. 2.—*Classic form of gas gangrene.* A., discharge from wound—1, *B. perfringens*; 2, cœur jaune; 3, diplococci; 4, staphylococci; 5, streptococci. B., discharge from muscle taken far from the wound after incision made by surgeon—1, *B. perfringens*; 2, cœur jaune; 3, diplococcus. C., the blood has shown only the *B. perfringens*.

FIG. 3.—*Classic form of gas gangrene (putrid variety).* Discharge from wound—1, *B. perfringens*; 2, *B. sporogenes*; 3, proteus (Gram negative); 4, streptococcus; 5, diplococci.

FIG. 4.—*Classic form of gas gangrene.* Patient died from septicæmia caused by vibriion septique. A., discharge from the wound—(a) *B. perfringens*; (b) vibriion septique; (b¹) spore of vibriion septique; (d) cœur jaune; (e) diplococci. B., discharge from muscle taken far from the wound—(a) *B. perfringens*; (b, b¹) vibriion septique and its spores; (c) *B. tetani*. C., culture of vibriion septique obtained by hæmoculture (the blood was inoculated in broth twelve hours before the death of the patient).

FIG. 5.—*Different strains of B. œdematiens.* 1, strain giving straight elements; 2, strain forming curved elements; 3, strain forming chains; 4, flagella of the *B. œdematiens*. A., spores of the *B. œdematiens*. B., discharge from muscle of a guinea-pig inoculated with *B. œdematiens*, showing the spore-bearing bacilli.

FIG. 6.—*B. fallax.* 1, pure culture on broth; 2, flagella of *B. fallax*; 3, serosity of muscle of a guinea-pig infected by *B. fallax*.

FIG. 7.—*Toxic form of gas gangrene.* 1, *B. perfringens*; 2, *B. œdematiens*.

FIG. 8.—*Toxic form of gas gangrene (putrid variety).* 1, *B. œdematiens*; 2, *B. sporogenes*; 3, cœur jaune.

FIG. 9.—*Toxic form of gas gangrene.* A., discharge from wound—1, *B. œdematiens*; 2, *B. sporogenes*; 3, *B. tetani*; the smears show two diplococci. B., *B. œdematiens* alone; from the œdematous fluid.

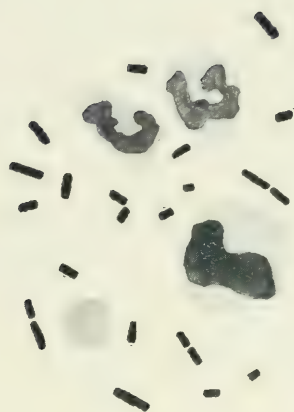


FIG. 1.

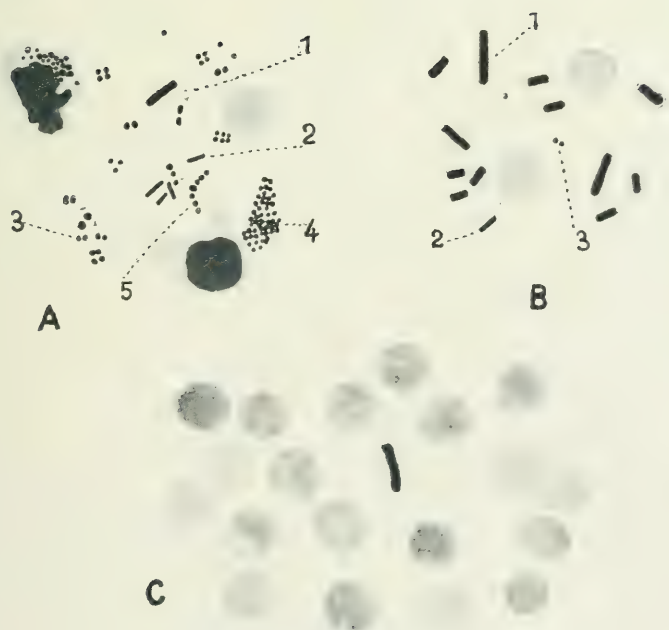


FIG. 2.

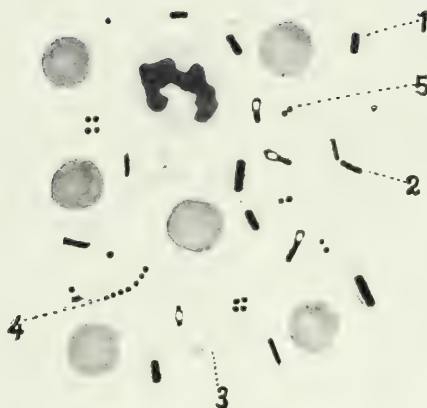


FIG. 3.

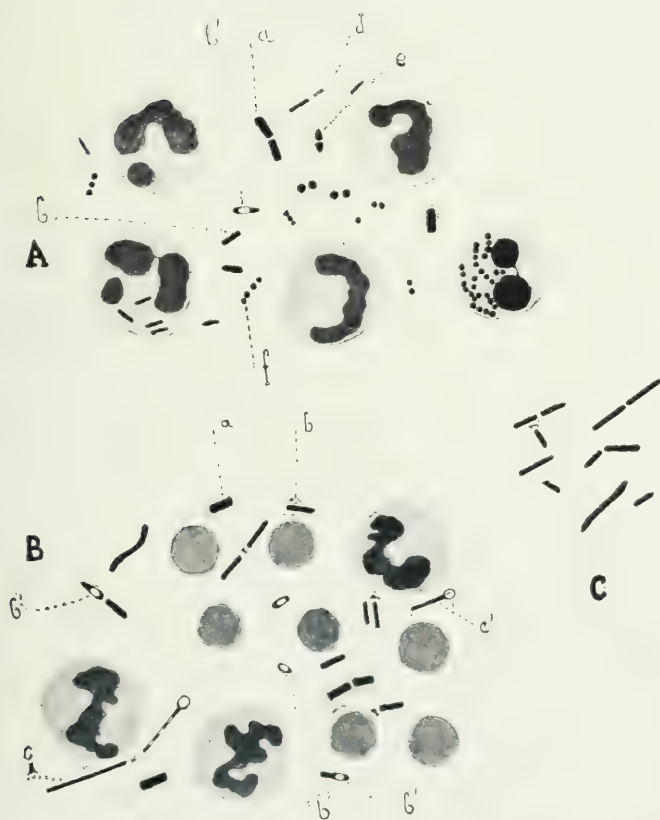
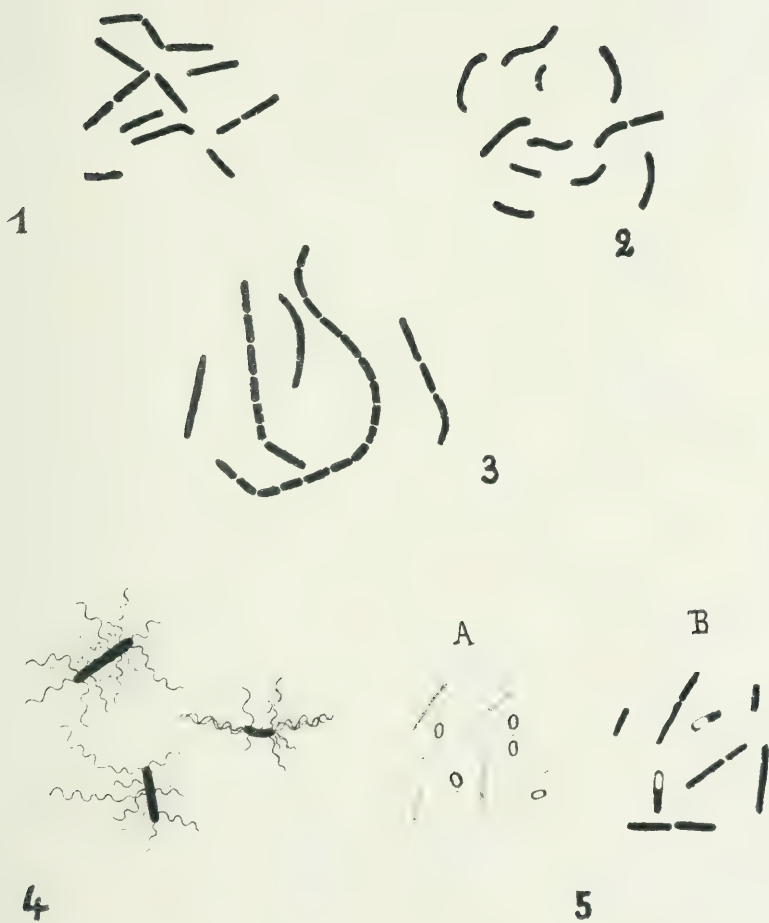


FIG. 4.

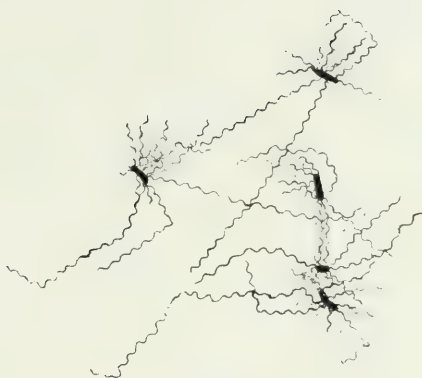


P. Séguin del.

FIG. 5.



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FIG. 6

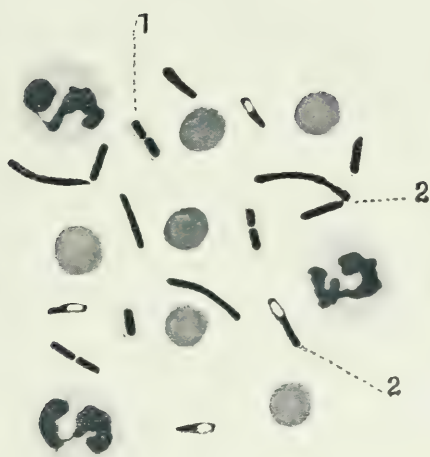


FIG. 7.

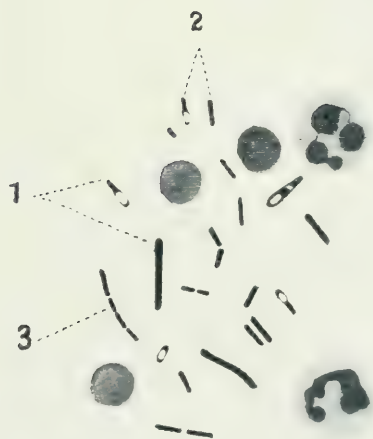


FIG. 8.

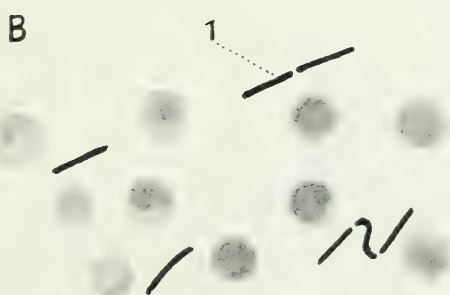
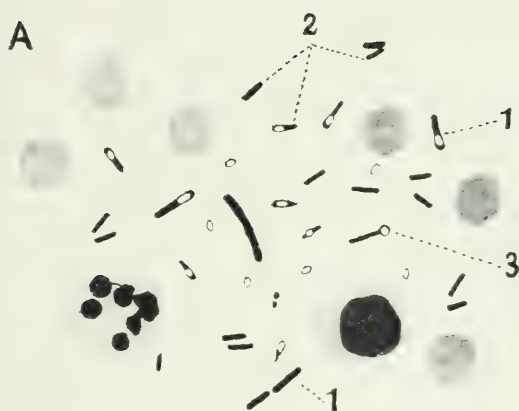


FIG. 9.

NOTES OF SEVERAL CASES OF COMPLICATIONS
OF PREGNANCY TREATED IN NOVEMBER AND
DECEMBER, 1915.

BY ROBERT JARDINE, M.D.

SOME years ago Dr. J. W. Ballantyne, of Edinburgh, published several articles urging the opening of wards in our maternity hospitals for the treatment of the complications of pregnancy: pre-maternity wards was the name he suggested for them. I understand such a ward has been opened in the Edinburgh Maternity Hospital. Here in Glasgow we have admitted cases of complication of pregnancy for many years, and since the opening of the present hospital the number has markedly increased. In addition to that, advice has been given to women seeking it of their own accord, and to many who have been sent by their doctors. It is gratifying to find that more and more medical men are sending cases to us for consultation. The question of a fee is often a barrier to a consultation, and in medical or surgical cases it is usual to send them to hospital to obtain expert opinion; in cases of pregnancy the same should hold good.

As an illustrative case, let us take one which is extremely common in Glasgow, viz., a case of a contracted pelvis. If a doctor is asked to attend such a case, a mere glance at the woman should satisfy him of the possibility of a difficult labour, and he should insist on an examination before full time has been reached. If he considers the case is one which he can deliver with safety, well and good; but if he has any doubt, in the interest of the patient and also in his own interest, he should insist on a consultation. If the patient is unable to pay for a consultation, it can be obtained at the Maternity Hospital, and we gladly see such cases and advise what should be done. If it is a case for induction of labour the doctor can do it at the patient's house, if he cares to undertake it; but if it is one for Cæsarean section the hospital is the place for her,

and arrangements will be made for her admission a few days before the labour is due. It is a very unfortunate thing that attempts to deliver are constantly being made in cases where there is no chance of getting a live child, and the patient is then transferred to the hospital. In such cases, craniotomy is generally our only resort, and the risk to the mother is greater than she would have run if she had had a Cæsarean section at the beginning of labour; and, of course, the child is lost.

During last year, in order to systematise the work of the ante-natal department, a dispensary was opened at the hospital on two days in the week under the care of the two assistants on duty. Cases which are specially recommended to the chief physicians for consultation will be seen as usual. Two wards are to be specially used for the indoor treatment. The importance of the proper treatment of complications of pregnancy cannot be over-estimated, and I trust that more and more of the cases will be sent in, such as those of cardiac disease, albuminuria, pernicious vomiting, &c. It is almost impossible to deal with such cases properly in their own homes, and the hospital is the best place for them.

I shall now give notes of a few of the cases which I had to deal with during November and December of last year, as these will illustrate the kind of work which is constantly being done in the hospital.

CASE I.—*Retroflexion of the gravid uterus with retention of urine.*

Mrs. M'K., vi-gravida, æt. 40 years. This patient had had three living children, one still-birth, and one miscarriage. Her last period had been fully four months ago. For the last month she had suffered from retention of urine with a constant overflow. During the week prior to admission her medical attendant had been drawing off her urine. During the month she had vomited very frequently.

On admission, her temperature was subnormal and her pulse rapid. Her tongue was furred, and her breath very fœtid. Her complexion was sallow, and she had the appearance of a woman in a very toxic condition. From her vagina there was a discharge of very foul bloody urine. The passage was very lax, and the posterior wall could be seen bulging. The cervix

was drawn up behind the symphysis pubis, and a rounded mass could be felt through the posterior fornix continuous with the cervix. The bladder was not over-distended at this time, but bloody urine was constantly dribbling from the meatus. The body of the uterus could not be felt in the anterior fornix. The condition was so apparent that it seems incredible that it had not been recognised. I passed a catheter and drew off a few ounces of most horribly stinking, bloody urine, and, in addition, bubbles of very fœtid gas escaped through the catheter. I then replaced the retroflexed uterus with ease, and put in a ring pessary. The bladder was then washed out with boracic acid solution, and several ounces of the solution were left in.

The patient was freely stimulated with strychnine and given urinary antiseptics and saline transfusions, and the bladder was frequently washed out; but she gradually sank, and died three days after admission. The amount of urine excreted was very small, and there was a great deal of blood in it up to the end; but the bladder was regaining its tone, as the patient passed urine herself on the last day of her life. Her temperature remained subnormal throughout.

This patient, who came from the country, brought no note from her doctor, but, from what we were told, it seems as if the displacement had not been recognised. This is not the first case I have had to treat where the displacement had not been recognised. It is difficult to understand how this should happen, as the diagnosis is so easy. If a woman begins to have constant dribbling of urine when she is between three and four months' pregnant, she is almost sure to have a posterior displacement, and a vaginal examination will at once settle the question, as a large rounded swelling will be felt through the posterior fornix, and the cervix will be high up behind the symphysis pubis.

The treatment is generally very easy, viz., to empty the bladder, and then replace the uterus and put in a ring pessary. If the bladder is very much over-distended, it should be emptied gradually to prevent hæmorrhage occurring from the mucous membrane. Cases have been reported where it was found to be impossible to replace the uterus from below, but

I have not met with one. In such a case, replacement can be done by opening the abdomen and pulling the uterus up.

CASE II.—*Retroflexion of the gravid uterus with pernicious vomiting.*

Mrs. C., v-gravida, æt. 43 years, was admitted on 1st December after nine weeks of amenorrhœa. She had suffered from sickness practically all the time, and it had been incessant for about a month. Two different doctors had been treating her, and, finally, she had been seen by a consultant, who had diagnosed a retroflexion and sent her into the hospital. The patient was somewhat jaundiced, and she looked very ill. The bladder was not distended, and there had been no urinary disturbance. As I was in the hospital when she was admitted, I at once replaced the uterus and put in a ring pessary. She did not require an anæsthetic, and there was no difficulty in pushing the uterus up. I tried to impress upon the patient that now that the womb was in its right place the sickness should cease. She was given peptonised milk by the mouth, and, as her pulse was very weak, strychnine hypodermically, but large inflammatory masses formed wherever the needle was inserted, so we had to give up the injections.

The patient did not improve as we hoped, and the sickness continued; so on the 11th (ten days after admission) I induced abortion by putting in a tent. Twenty-four hours later I took the tent out and removed part of the uterine contents, and packed with iodoform gauze. The patient was in such a feeble condition that I did not care to give her an anæsthetic. On the following day I removed the packing, and emptied the uterus without giving her an anæsthetic. She gradually improved after this, and five days later she was able to take some porridge; but by this time she began to complain of pain on passing urine, and there was tenderness in the region of the right kidney. There was pus in the urine. Urinary antiseptics were given, and the discomfort subsided. The uterus was found to be displaced backwards, so it was replaced and a pessary was put in. When the patient left the hospital she was fairly well.

Graily Hewitt used to maintain that pernicious vomiting

was due to displacement of the uterus, and he wrote a book on the subject. I have treated very many cases of both conditions, but this is the first one in which both were present. Now, if the vomiting had been caused by the displacement, it should have ceased when the uterus was replaced. In some cases of severe vomiting there is a neurotic element present, and treatment by suggestion is very effective. To get rid of any neurotic element in this case, I tried my best to convince the patient that when the uterus was replaced the sickness should cease. I must admit that, though I do not believe in the displacement theory of the cause of pernicious vomiting, I was hopeful that the sickness would cease in this case, but I was disappointed.

The case was an exceedingly interesting one from more points than one. There was one little interesting point which I have not mentioned, viz., that she had no pulse in one wrist, and it was somewhat disconcerting, especially when she was very ill, to get hold of the wrong wrist. In reference to this, I always remember a fright I got, many years ago, when I could not feel a pulse in the wrist of a patient I had delivered. Fortunately, I had sense enough to try the other wrist, where I found a normal pulse.

CASE III.—*Pernicious vomiting.*

Mrs. M., i-gravida, æt. 27 years, was admitted on 21st November for persistent vomiting. Her last period had been in August. She had vomited from the very beginning of the pregnancy, and had been confined to bed for the last five weeks. There was considerable jaundice. As there was no improvement, abortion was induced on the 25th by the introduction of a tent, which was left in for twenty-four hours. When the tent was taken out the uterine contents were removed with a curette. The vomiting at once ceased, and the patient quickly regained strength and began to put on flesh.

CASE IV.—*Pernicious vomiting.*

Mrs. D., ii-gravida, æt. 27 years, was admitted on 3rd December, six weeks' pregnant, complaining of severe vomiting. She was emaciated, but was in fairly good condition, and did not

look like a woman who was suffering from toxæmia. In her previous pregnancy she had been in the hospital for two weeks suffering from vomiting. Her bowels were cleared out; she was given small quantities of peptonised milk and minim doses of glycerine of carbolic (*B.P.*). The vomiting ceased, and she was soon able to take light diet. She was dismissed on the 21st.

Professor Cameron is a strong believer in the efficacy of glycerine of carbolic in these cases. This patient certainly got well while she was taking it; but it was given in the other cases without any good effect.

The case was probably not one of toxæmic vomiting. In these no drug seems to be of any use.

CASE V.—*Parovarian cyst with twisted pedicle.*

Mrs. C., vii-gravida, æt. 25 years, was admitted from the Western Infirmary on 15th November, complaining of severe pain in the pelvic region. Her last child had been born eleven months before. She had ceased to menstruate on 14th August. A vaginal examination revealed that the pregnant uterus was pushed up above the brim of the pelvis, and towards the right. Through the posterior and left lateral fornix a firm, rounded, cystic mass could be felt. It was fixed, and could not be pushed up. There was a good deal of tenderness. The bowels were very loaded. When the bowels were thoroughly cleared out the tumour was still fixed. The diagnosis of a broad ligament cyst was made. There was no fever.

In the consultation which was held, I was advised to bring on an abortion, and then to deal with the tumour afterwards. This advice was given because of the tumour being so fixed. I decided to remove the tumour without first emptying the uterus.

On opening the abdomen, the cyst was found to be to the left and behind the uterus. It was covered with adhesions which, fortunately, were not very firm. I freed the adhesions with my hand, and then found that the cyst really belonged to the right side, and its pedicle, which had three twists on it, stretched across behind the uterus. I clamped the pedicle and cut it

through, when the cyst, which was about the size of a large goose egg, was easily shelled out. I then brought the clamp across behind the uterus and tied the pedicle. A small hydatid of Morgagni, full of blood, was also removed. The ovary was left. The cyst was a parovarian one, with the tube stretched over it. There was very little oozing from the adhesions. The abdomen was closed in the usual way, and the patient was given a half-grain morphia suppository to quieten uterine action. The pregnant uterus had been disturbed as little as possible, but it had to be handled a good deal in separating the adhesions.

The patient made an uninterrupted recovery, without any threatenings of an abortion.

Twisting of the pedicle of cysts complicating pregnancy is very common. In the month of October a woman was admitted to the hospital, under Dr. Martin's care, suffering from extreme pain in the abdomen and a high temperature. She was about five and a half months' pregnant. Three weeks before, she had been struck on the side when entering or leaving a tramcar. The pain had begun at once, and had continued with considerable elevation of temperature.

When I saw her the right side of the abdomen was rigid, very tender, and dull to percussion up to the liver. The uterus lay to the left. I could not feel any tumour through the vagina, but I found the patient was in labour, so I advised waiting until the uterus had emptied itself, which it did in a few hours. There was some improvement in the patient's condition, but the dulness and tenderness in the right side continued. No tumour could be felt through the vagina. There had been considerable jaundice, and the question arose as to the possibility of the swelling being connected with the gall-bladder. As the temperature rose again on the third day of the puerperium we decided to operate. I assisted Dr. Martin. A longitudinal incision was made towards the right side, and the rectus muscle was drawn inwards and the abdomen opened. The tumour was found to be an ovarian cyst with a twisted pedicle. It was very adherent right up to the liver, and it was beginning to break down. When it was got out masses of lymph, very like pus, were found over the kidney:

these were cleared away. Drainage was obtained by packing with iodoform gauze.

The patient made a good recovery.

I must confess, I did not know what the swelling was until I saw the tumour. The patient was quite unaware that she had a tumour, and I do not think her medical attendant knew of its presence; if he did, he certainly kept the knowledge to himself. The fact that we could not feel it from below seemed to indicate that it could not be ovarian. The reason why it could not be felt through the vagina was that it had been lifted up into the abdomen by the pregnant uterus, and, when the twisting of the pedicle had occurred, the upper part of it had become adherent to the under surface of the liver near the gall-bladder, and kept it high up in the abdomen.

If this patient had been operated on immediately, or even within a few days of the twisting of the pedicle, the pregnancy might not have been interrupted; but it was too late when she came into hospital, as the labour was commencing.

CASE VI.—*Albuminuria and a small fibroid.*

Mrs. A., iv-gravida, æt. 37 years, was admitted on 5th November suffering from albuminuria. She was fully four months' pregnant. She also had a small fibroid attached to the fundus of the uterus.

The patient's first pregnancy had been normal. In the second one she had been sent into the hospital in convulsions. In her third one she had applied to Dr. M'Kim for advice when she was six months' pregnant. He had found her urine heavily loaded with albumen, and had at once put her to bed and treated her, but in a fortnight or so she had given birth to a still-born foetus. She was kept under treatment, but the albumen had never cleared up. When she became pregnant for the fourth time, the albumen increased in amount in spite of strict dieting and treatment. I saw the patient in consultation, and we decided that, in view of the kidney condition, the safest thing for the mother would be to terminate the pregnancy. The fibroid was not one which would be likely to give trouble, but I offered to remove it, and to sterilise the

patient by tying and cutting her tubes so as to prevent future pregnancies. The woman and the husband agreed to this, but after the uterus was emptied they decided against the operation, and said that they would take good care that there would be no more pregnancies. For the woman's sake I hope this will be so.

After admission the patient was kept under observation for three days, but the albumen showed no signs of decreasing, so on the 8th I put in a tent and left it in for twenty-four hours. When it was taken out the cervix was packed with iodoform gauze. Twenty-four hours later the packing was removed, but there was no indication of the uterus emptying itself. Pituitrin was given, and there were strong contractions for a couple of hours, but they then ceased. Pituitrin was given several times and contractions came on, but soon ceased. It was not until the 16th, eight days from the introduction of the tent, that the labour really came on. I then delivered the foetus, which was alive, but only survived for a few minutes.

The patient made an uninterrupted recovery, and the fibroid decreased in size. The albumen was still present in the urine when she was dismissed.

In this case there was very great difficulty in getting the uterus to empty itself. Pituitrin was used several times, and it generally set up contractions for an hour or two, when they ceased. The patient's pulse and temperature remained quite normal, so I did not feel called upon actively to interfere until the os was sufficiently dilated to allow of delivery.

During last year we had to treat a very large number of abortions, most of them of the incomplete variety, and many of them very septic. The following case, which was admitted on 27th December, turned out to be a very interesting one, as the patient had a double uterus:—

CASE VII.—Mrs. H., ix-gravida, æt. 30 years, was admitted on the recommendation of Dr. Sutherland, of Partick, on account of a discharge of dark-coloured blood, which had been going on for six weeks. At times the discharge had been slight, but at other times it had been very profuse, and then

there was severe pelvic pain; occasionally, there was some bright blood. The patient was supposed to be three months pregnant. In her childhood she had had many tubercular abscesses in different parts of her body, the scars of which could be seen. She had attended the Victoria Infirmary for years for treatment.

On admission she was examined, and the os was found to be small. A small dilator was passed in and it went up towards the right side, and what appeared to be the bulk of the body of the uterus lay towards the left. The resident suspected a double uterus, so she put some packing into the cervical canal, and the next day I took the packing out and inserted a tent. The fundus was broad, but I could not make out any distinct cleft in it. Active pains came on, and on the 29th, when I took the tent out, there was sufficient dilatation to admit a finger. I then found there was a septum dividing the uterus into two compartments, but not coming down to the internal os. In the left compartment there was black clot and some decidual tissue, while in the right side there was a small fœtus in its membranes. The left side may have been pregnant and an abortion have occurred, but one could not judge from the presence of decidual tissue, as it always forms in the non-pregnant half of a double uterus. I cleared out both sides as completely as possible. The septum was partly broken down, and I think some of it came away. I packed both sides with iodoform gauze; the packing was taken out next day. There was a good deal of reddish discharge for some days, much more than usual, and after that ceased there was a free leucorrhœal discharge with some pus in it.

I examined the patient before she left the hospital, and could pass the sound into the two compartments, but, bimanually, the double condition could not be made out.

This was the woman's ninth pregnancy, but she had no idea that there was anything abnormal about her uterus, so I suppose the condition had never been discovered during her previous deliveries. I do not think there had ever been any difficulties in her labours.

In January of this year, just before I went off duty, I had another interesting case of abortion. The patient was brought

in from the outdoor department as an incomplete abortion. A sac had come away, and, as the discharge continued, she was brought in to have the decidua cleared out. When I was clearing the decidua out I came upon another sac, and got away an embryo and its membranes. It had been a case of twins, in which one sac had been expelled.

Various other cases were dealt with, such as one of cardiac disease, one of exophthalmic goitre, one of pyelitis, one of hemiplegia, and a number of cases of eclampsia and albuminuria. One of the cases of eclampsia was unique, as the labour ended in the birth of live triplets, with two of the children joined together, buttock to buttock, by means of a sac, in which the greater part of their intestines lay. The third child, a male, weighed $6\frac{1}{2}$ lb. The united children lived for nearly six days; the single child was quite strong and healthy. Unfortunately, the mother died from pneumonia. The full notes, with a description of the united children, will be published by Dr. Gemmill.

PYURIA, A SYMPTOM : ITS CAUSES AND DIAGNOSIS.

By DAVID NEWMAN, M.D., F.R.F.P.S.G.
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(Concluded from p. 176.)

The detection of pus in the urine is not of itself sufficient to guide the surgeon to a diagnosis, although by it alone information may be obtained to assist him considerably in his enquiry. But when the special characters of the pus are studied in conjunction with the circumstances attending its escape, and in view of the general features of the case, little difficulty will be experienced in discovering the nature and position of the morbid lesion.

Examination of the urine.—The appearance imparted by the addition of pus varies according to the amount present, and the character of the other morbid constituents in the urine. In cases where the pyuria is due to septic lesions of the kidney only, the pus appears as a thick, opaque, creamy sediment, which, on standing, is rapidly and almost completely precipitated from an acid urine, the supernatant fluid is comparatively clear, is free from mucus, and does not decompose rapidly. On the other hand, where the pus is derived from the bladder alone, or in conjunction with a renal lesion, pus is not deposited quickly; when it falls it is precipitated along with glairy mucus, the urine in which it remains partly suspended is frequently alkaline, and when it is so decomposition of urea begins before the urine escapes from the bladder. The time at which the pus appears in the stream should be ascertained if possible. The appearance of pus at the beginning of micturition, during the whole flow, or at the end of the act only, lends additional significance to the symptom.

To ascertain where the pus gains access to the stream, we try to find out in what portion of the urine it appears most abundantly, and with this aim in view the suggestions made by Sir Henry Thompson are valuable:—

“When a specimen is wanted, tell the patient not to send you a bottle of it, passed in the usual way, or you will get a mixture often of doubtful value. What you require is the secretion of the kidneys *plus* only anything there may be in the bladder; but you also have to avoid the presence in it of any secretion which originated in the urethra. Make a point of demanding that the patient should first pass two or three tablespoonfuls through the urethra, so as to sweep out whatever may happen to be there (which may be thrown away, or be put into a separate bottle), after which you will get a pure specimen for examination; at anyrate, one of which you will know the source. You will have the renal secretion *plus* only whatever deposit may be produced in the bladder. Suppose the patient has gleet or chronic prostatitis, there will then be a quantity of muco-purulent matter in the urethra. If all this be carried into one vessel with the urine, how will you determine the different products, and decide, by the eye or by the microscope, what has come from the urethra, what from the prostate, and what from the kidneys? You cannot do it; but if you get rid of the source of error by flushing the urethra, so to speak—that is, by passing the first two or three tablespoonfuls into a wineglass, while all that follows is passed into a separate vessel, such as a tumbler, you will have in the latter a sample of urine that can be relied upon for examination.”

The necessity for avoiding admixture of urethral products with urine, in order to ensure a pure specimen, has been enjoined, and the mode of attaining the object by the use of two glasses. It is sometimes quite as essential to avoid its admixture with products of the bladder, and it is not possible to make an absolute diagnosis, in some few exceptional cases, without following the method in question. When, therefore, it is essential to obtain a pure specimen of the renal secretion free from the presence of vesical products, I pass a soft flexible catheter of medium size into the bladder—the patient standing—draw off all the urine, carefully wash out the viscus by repeated small injections of warm water, and then permit the urine to pass, as it will do, *guttatim* into a test-tube, or other small glass vessel, for purposes of examination. The bladder ceases for a time to be a reservoir; it does not expand, but is contracted round the catheter, and the urine percolates from

the ureters direct. The ureters are virtually lengthened as far as to the glass. Thus is obtained a specimen which, for appreciating albumen, for determining reaction, and for freedom from vesical pus and even blood, and from cell-growths of vesical origin, is of considerable value, and has sometimes furnished me with the only data previously wanting to accomplish an exact diagnosis.

The clinical significance of pyuria in many respects resembles that of hæmaturia, but differs from it in so far that an accurate diagnosis of the portion of the urinary tract from which the pus comes is more difficult to make.

Pus from the urethra, as in hæmaturia from the same situation, escapes independently of micturition, or is only mixed with the first few drops of urine; this fact, together with the presence of pain in the region, is usually sufficient to determine its origin. In such instances the quantity of pus is usually small, and it appears in flakes or threads. These are casts of ducts leading into the urethra, or threads of pus and macerated epithelium from granular patches swept away in the first portion of the stream. These urethral casts or shreds must not be mistaken for somewhat similar discharge occasionally observed in tuberculosis of the urinary tract. When urethral in origin, they can be expressed from the canal before and after micturition.

In posterior urethritis the discharge may escape from the urethra into the bladder, and so cause pus to appear in the second portion of the urine got by the three glass test. Tenderness in the posterior urethra and in the prostatic area will help to clear up any doubt as to the point of origin, and the question may be decided by employing prostatic massage prior to the passage of the last drachm of urine. If it contains a considerable quantity of pus and *débris* the diagnosis is clear.

Another method is, the patient standing erect, wash out the urethra carefully until the fluid coming away is clear; he is then directed to pass a small quantity of urine, one or two drachms, which is collected in glass No. 1; an ounce is then allowed to escape into glass No. 2, and the remainder of the urine into glass No. 3.

If No. 1 and No. 2 alone contain pus, active posterior

urethritis is indicated; if the washings are purulent and Nos. 1 and 2 are clear, then the inflammation is limited to the anterior urethra. When the whole of the urine passed contains some pus, the affection giving rise to the pyuria is as high up as the bladder or higher. The exact lesion present can, unless the lesion is very acute, be demonstrated by the urethroscope. When the inflammation is situated in the posterior part of the urethra, it may give rise to vesical irritation and some obstruction to micturition.

It is otherwise in *catarrh of the bladder*, in which case the pus only escapes mixed with the urine, it is more or less abundant, and is accompanied by a number of large vesical epithelial cells. Vesical catarrh is generally associated with considerable pain on micturition and inability to retain urine for any length of time. A small quantity of pus in an acid urine is not necessarily of much significance, as it may be due to the slight catarrh seen so frequently in uterine and ovarian disease, but it may also be one of the earlier symptoms of tuberculosis. When the irritation is more severe, and especially when due to the action of micro-organisms, not only is the quantity of pus increased, but much mucus may be secreted. So long, however, as decomposition does not occur, the pus and mucus separate as distinct deposits on standing; but if the urine becomes alkaline before evacuation, the pus becomes thick and glairy, and remains suspended along with the mucus. To establish the fact that there is cystitis is not sufficient; the cause of the altered condition must be determined, and this may be done by a cystoscopic examination.

When the kidney is the organ involved the deposit contains epithelial cells from the pelvis, from the renal convoluted tubules, or from the straight collecting tubes; or there may be tube-casts, epithelial, granular, pus or blood-casts.

If it has been ascertained that there is no primary urethral lesion, and no disease of the bladder, inflammation or suppuration of the prostate, no pelvic or other abscesses opening into the urinary tract, then we must proceed to enquire whether the pus is proceeding from one or from both ureters. This may be

done by inspecting the bladder with the cystoscope or by catheterising the ureters.

Having discovered that pus is flowing with the urine from the ureters, the next point to clear up is the nature of the renal lesion. The most important diseases of the kidney which are characterised by pyuria are pyelitis, pyonephrosis with or without calculus, suppurative nephritis, tuberculous disease, and cystic disease when the cyst has suppurated.

The question may now be asked—Is there, by observing the urine, any means of distinguishing one form of renal pyuria from another? To some extent the microscopical appearance of the corpuscles may serve as a guide. When the pus-cells are round, well-developed, the contents of the corpuscles clear, and when, on addition of acetic acid, the cells show well-marked nuclei, the presumption is that they are of recent origin, and have formed on a mucous surface. But if the cells contain a considerable quantity of finely granular particles, which impart a cloudy appearance to the protoplasm, if the cell-wall be irregular and ill-defined, and the nuclei few in number and small in size, the suppuration is probably deep-seated, and due to chronic inflammation.

When pyuria is a consequence of *inflammation of the pelvis and calices of the kidney*, being mixed with an acid urine, the pus, on standing, usually precipitates rapidly, separates clearly from the supernatant fluid, and if the inflammation be very acute, or if a calculus be present, the pus may occasionally be mixed with blood. A careful record must be kept, not only of the relative, but also of the absolute quantity of pus, as sudden and marked variation in the amount is one of the most certain indications of partial or complete obstruction of the ureter from which the pus is flowing. If the disappearance of pus from the urine be associated with increase in the lumbar swelling, and followed by the sudden escape of a large quantity of purulent urine, coincident with a subsidence of the swelling, then it is clear that the ureter has been blocked for a time and its patency restored.

As the result of *calculous pyelitis*, prior to the appearance of pus, the urine is usually observed to contain an abundant quantity of mucus, which forms a bulky, tenacious mass. So long as the urine remains acid the mucus is readily deposited

from the urine. This is especially the case when the calculus is composed of oxalate of lime. Before pyuria is observed, microscopic examination of the deposit may demonstrate the presence of large spheroidal granular cells, degenerated epithelium, and a few blood corpuscles. When the pyelitis, which in the early stage is simply the result of mechanical irritation, has existed for some time, the quantity of pus increases and the mucus disappears. So long as the urine remains acid, and no vesical disturbance arises, micturition is not unduly frequent, and the urine has not an offensive odour. But if there be frequent or considerable accumulations in the pelvis of the kidney as a result of obstruction, the fluid so retained is liable to septic infection, and if the organisms have the property of decomposing urea, the urine rapidly becomes alkaline and glairy, has an offensive odour, and is in almost all respects similar to the urine in cystitis.

When *suppurative nephritis* arises as a complication of the retention of decomposing urine, or as a sequence to a chronic pyelitis, the course of the disease is usually very rapid, and the diagnosis is not difficult. The history of some obstruction to the flow of urine is usually found, whether it be from stricture of the urethra, enlarged prostate, atony of the bladder, vesical calculus, tumours of the bladder, tuberculosis, disease of the spine, or other cause by which the bladder is kept in a distended state, and its contents rendered liable to decomposition.

When decomposition of urine in the pelvis of the kidney occurs, pyelonephritis soon manifests itself—sometimes, but not usually, by severe pain in the loins, aggravated by pressure upon the abdominal walls over the kidney. Although pain in the renal region is rare, the patient suffers from spasm at the neck of the bladder, and pain along the tract of the ureter.

The urine does not present any characters of diagnostic value, but varies much according to the individual case. When the inflammation primarily involves the pelvis, and has spread rapidly from it to the kidney tissue, the urine, although purulent, remains acid for some time, and is less abundant than normal. The urine may, however, present the characters indicative of chronic Bright's disease, namely, polyuria and albuminuria, with diminution in the quantity of urea and the presence of tube-casts.

Pyelonephritis is usually the result of an unhealthy state of the bladder. Consequently, in that disease the urine, although it may be acid when it escapes from the ureter, becoming mixed with the contents of the bladder, decomposes, is passed alkaline, has an offensive odour, and contains a large quantity of mucus, epithelium, pus, and triple phosphates. When there are no acute or chronic organic changes in the kidney, the quantity of albumen is regulated by the amount of pus or blood; but, as not infrequently chronic Bright's disease also exists, there is an albuminuria independent of these constituents, so that no relationship exists between the amount of pus or blood and the quantity of albumen.

The diagnosis of pyelonephritis from suppurative nephritis must rest largely upon a careful consideration of the etiological facts of the case. The constitutional symptoms of the two diseases are practically the same. In the former, however, pyuria precedes, in the latter it succeeds, the other symptoms. If the abscess in the kidney ruptures externally, or forms a perinephritic abscess throughout the course of the case, pus may not appear in the urine; but should the abscess attain a considerable size, and rupture into the pelvis, ureter, or bladder, the sudden appearance of a large quantity of pus in the urine may clear up the diagnosis.

In *pyonephrosis* there is evidence both of suppuration and of obstruction. In some cases suppuration precedes the obstruction; in others the opposite sequence of events occurs, as when a hydronephrosis becomes inflamed; while in a third class the two conditions develop *pari passu*.

In pyonephrosis there is a characteristic renal swelling—elastic, fluctuant, and varying in size from time to time, much in the same way as hydronephrosis. Together with these symptoms there is a discharge of pus in the urine, or evidence of its retention, manifested by increase in the renal swelling, and more severe pain in the lumbar region, which is aggravated by pressure in front, but relieved by pressure from behind. There may be also symptoms of a more urgent nature, indicative of systemic poisoning, either from non-elimination of the urinary constituents or from absorption of infective material.

In pyonephrosis the quantity of pus in the urine varies from

day to day, according to the posture the patient occupies, and to the nature of the obstruction. The changes in the condition of the urine are determined by the same circumstances as those noticed in cases of pyelitis and pyelonephritis.

In *cystic disease* the urine has the characters of chronic interstitial nephritis; it is pale, copious, of low specific gravity, and may contain coarse granular tube-casts. There may be copious hæmaturia, and should the cysts suppurate or pyelitis be established, pus may escape through the bladder, and in hydatid cysts of the kidney echinococci or hooklets may appear in the urine.

In *tuberculous disease* the urine furnishes important information, and in all cases should be carefully examined prior to the employment of instruments to explore the bladder or ureters. Although tuberculous bacilli are classified as non-pyogenic, and properly so, in many cases of tuberculous disease, before mixed infection has occurred, large numbers of leucocytes, not distinguishable by the microscope from pus, may be found. In pure tuberculous disease the urine is acid, and free from pyogenic microbes. For diagnostic purposes it is, therefore, necessary to draw off through a sterilised catheter a quantity of urine and to make cultures. The presence of pyogenic micro-organisms does not exclude the possibility of the disease being tuberculous, but their absence greatly strengthens the presumption.

As the disease advances the odour of the urine, as a rule, becomes more and more offensive; the fluid deposits large quantities of mucus and triple phosphates, and on examination it is found to be highly albuminous. Occasionally, while the urine is pale and of low specific gravity, there may be evidence of retention on the diseased side, as shown by increase in the renal swelling, with, perhaps, indistinct fluctuation and pain, accompanied by general constitutional disturbances, or there may be complete suppression, death being ushered in by uræmic symptoms.

In addition to the diagnostic points already indicated, the detection of the tubercle bacillus in the urinary *débris* is of great value. It is when tuberculous lesions begin to break down that tubercle bacilli are most abundant, and sometimes their number is very large. Several examinations are required

before it can be concluded from negative results that the case is not tuberculous.

Besides the detection of the tubercle bacillus, it is necessary to determine whether the disease is on one or both sides. Several times I have had occasion to examine by ureteral catheterisation cases of tuberculous pyelitis in which it was considered of importance to determine the extent to which the disease had involved one or both kidneys. Catheterisation can only determine the organ to which the tuberculous disease is limited; it cannot indicate the extent of the tuberculous lesion in the affected organ, but to make sure that one kidney is free from disease is a point of importance. The first time I succeeded in doing this was in 1886, when a case was examined, and it was clearly shown that the tuberculous lesion was limited to one kidney.

The cystoscopic appearances are of great value in forming a diagnosis—

(a) In diseases of the bladder.

(b) In diseases of the kidney.

(a) *In diseases of the bladder* the cystoscopic appearances vary according to the nature of the infection, the stage of the disease, and the complications accompanying the cystitis.

In *mild bacillus coli infection*, such as gives rise to nocturnal incontinence in girls and young women, or in that so often associated with pregnancy, the quantity of pus present in the urine is small and often can only be discovered by centrifugalising, and comparatively little change can be seen in the appearances of the interior of the bladder. The most notable lesions are congestion and swelling around the neck of the bladder and in the area of the trigone; elsewhere the mucous membrane is often anæmic, and here and there may be noticed little islands of less congested mucous membrane.

When caused by *gonococcus* the amount of pus is also small and it appears in strings: the mucous membrane is deeply congested, swollen, and thrown into irregular folds. This is most marked close to the neck: elsewhere the mucous membrane may be simply streaked, and here and there may be seen small submucous hæmorrhages.

In *acute cystitis from pneumococcus* the quantity of pus varies greatly, but is seldom large. The infection of the bladder is always secondary to that of the kidney, and, as a rule, the inflammatory changes are not very marked, being limited usually to the orifices of the ureters and the trigone. The vessels are very distinctly seen, being clearly mapped out; the congestion is patchy, but there is not much œdema or swelling of the vesical mucous membrane. There is no ulceration or hæmorrhage.

Acute cystitis arising from streptococcus infection is characterised by considerable pyuria, a large secretion of mucus and some hæmaturia, and differs from those above described in that the inflammation is more widespread. The urea-decomposing organisms rapidly set up serious changes in the bladder, and if the condition be not relieved within a short time it may lead to very serious consequences. The meatus is usually contracted, the mucous membrane swollen, congested, and pouting from the opening, so that the cystoscope is introduced into the urethra with difficulty, even although under normal conditions the lumen of the canal may be good. The urine is blood-stained, and on attempting to introduce fluid into the bladder it is at once expelled. By using an anæsthetic a view may be obtained, when the whole surface of the mucous membrane will be seen to be of a dark red or purple colour. It is swollen, often numerous submucous hæmorrhages are seen, and in some places ulceration may have taken place.

In *chronic cystitis due to bacillus coli* the pus is deposited in flakes and settles to the bottom of the urine glass in a well-defined deposit, the symptoms are frequently troublesome and difficult to get rid of, but, as a rule, the changes seen in the bladder are not serious; indeed, these are often surprisingly slight, and may be limited to the base and neck. Patchy congestion without much thickening of the mucous membrane is the most common change from the normal, and unless the observer has considerable experience the lesion may escape notice. The bladder may be infected for years with a mild variety of bacillus coli, giving rise to much discomfort, without showing very obvious evidence of disease beyond what has been described above until enlargement of the middle lobe of the prostate leads to obstruction. This change in the

prostate is very commonly preceded by a bacillus coli invasion of the bladder. In the majority of cases, however, the mucous membrane is congested and covered with thin flakes of mucopurulent material.

In *primary tuberculous cystitis* the quantity of pus is small, but ultimately may be abundant; the vessels ramifying in the mucous membrane are obscured and the cystoscopic field is often ill-defined, probably due to œdema of the mucous membrane. The surface may be unduly pale elsewhere than in the immediate neighbourhood of the tuberculous infiltration. The deposit may be in the form of short bands, or in irregular patches which are generally covered with thin pale flecks of mucus or necrosed mucous membrane. When these are removed by washing an irregular eroded surface is seen, surrounded by a zone of hyperæmia. These tuberculous lesions are most commonly observed on the posterior and superior aspects of the bladder. Little tuberculous pustules may be seen, or small caseous masses.

Chronic tuberculous cystitis presents a very varied appearance to the cystoscope. In cases of primary tuberculous cystitis the mucous membrane may be moderately injected, and the vessels in its walls more numerous than normal. Extending along the floor of the bladder there may be a pale mass not unlike œdematous granulation tissue, and in it a number of small, white, or greyish-yellow nodules or caseous points, some of which may be breaking down and discharging flaky pus; or the lesion may appear as small caseous masses covered by very thin mucous membrane. These nodules may be round, oval, or sausage-shaped, the most prominent part being almost white in colour, while the immediate surroundings are bright red and contrast markedly with the anæmic mucous membrane of the bladder; or the tuberculous process may begin by the formation of tubercles in the mucous membrane, and these, breaking down, form in a typical manner the so-called lenticular ulcers, characterised by a flat base covered by caseous matter and sharp ragged borders, within which little miliary nodules are situated.

In the earlier stages of secondary infection irregular patches of hyperæmic mucous membrane are seen in the trigone or neighbourhood of a ureter orifice, and are covered by greyish-white flakes partly loose, partly adherent to the eroded surface.

In other areas there may be small ulcers, covered by sloughs, while the margins of the ulcer are deeply injected and of a bright red colour. The smaller ulcers may be rounded, with minute caseous areas in their centre.

In the more advanced cases of tuberculous disease the whole of the mucous membrane becomes thickened and more or less eroded, the ulceration is widespread, and the ulcers vary much in form and appearance. They are, however, generally rounded and encircled by rings of deeply injected mucous membrane, covered with blood-clot, or by bright yellow sloughs. The necrosed patch may appear of a bright green colour, and have an irregular yellow ring close to its margin. In extreme cases, where a mixed infection has taken place, almost the whole surface of the mucous membrane may be destroyed.

(b) *In diseases of the kidney.*—In the diagnosis of renal pyuria the cystoscope is of value in clearing up the questions—(1) Are both kidneys functionally active? (2) Is one kidney diseased, or both involved? (3) If one alone is diseased, which is it?

For example, in chronic pyonephrosis, or in slow progressing renal tuberculosis, both kidneys may be enlarged, and pain may extend to both lumbar regions; but while on the one side the swelling and increased resistance is due to disease, on the other it is caused by an enlarged kidney, which has undergone compensatory hypertrophy. There are three points to be attended to—

(a) The appearance of the orifices of the ureters.

(b) The character of the excretion escaping from the orifice.

(c) The size, frequency, and regularity of the shoots.

The urine, as it is thrown into the bladder, forms a distinct jet, which shoots downwards and inwards; the spurt occupies about two seconds. The form of the spout can be seen more easily in cases of renal hæmaturia than when the excretion contains pus. The aspect of the orifices of the ureters individually, and in relation to each other, is important to observe. It may be stated as a general observation that, when the appearance of the orifice of one ureter is altered while that of the other is normal, the renal lesion is on the side of the morbid ureter. And, again, if the number of urinary shoots

be counted within a given time as they occur from each side, and a marked difference is observed, the side on which most shoots are seen is either the site of considerable local irritation or is the most active organ functionally. When due to morbid irritation the shoots not only succeed one another rapidly, but they are of short duration, and the urine which escapes is small in quantity; whereas, in increased functional activity, the shoots, in addition to being frequent, are prolonged, and the amount of the urine is large. Instead of coming in regular and distinct jets every twenty or thirty seconds, the force of the shoots may be diminished. The manner in which the urine enters the bladder may be so slow as to be hardly perceptible. In stricture of the ureter, or when its lumen is obstructed by a stone, the urine may dribble into the bladder, just as it dribbles out of it in enlarged prostate or in stricture of the urethra.

When the urinary shoots are more frequent on one side than on the other—(a) greater functional activity is indicated by the shoots being uniform in size and regular in rhythm; (b) undue irritation of the kidneys is to be inferred when the shoots, while more frequent than normal, are irregular in rhythm, unequal, and small in size; (c) stricture, stone, or chronic ureteritis should be suspected when the shoots are distorted in form or irregular in amount. When the urine does not escape in distinct jets—(a) dilatation of the ureter, without paralysis of the sphincter, is indicated when the urine dribbles into the bladder at intervals; (b) destruction of the sphincter action is shown by the urine flowing into the bladder almost continually.

In pyuria the character of the excretion varies greatly. For example, in a recent coli bacillus pyelitis, the urine escaping at short intervals may present only a very slight milkiness; whereas, in an old-standing pyonephrosis, the excretion may be highly purulent, and long intervals occur between the shoots, or pus may only escape from the ureter when pressure is made upon the corresponding kidney. When the function of the kidney is in abeyance no regular shoots occur, but pressure causes pus to exude from the mouth of the ureter, or a cord of purulent material may be pressed out, breaking into small segments as they escape into the bladder, and these may present

an appearance not unlike a group of cheese maggots lying on the floor of the bladder. These on evacuation of urine are broken up and mixed by the stream.

In pyelitis, suppurative nephritis, calculous pyelitis, pyonephrosis, and in tuberculosis, the lesions of the kidney reveal their presence by changes in the form and colouration of the ureteral orifices as well as in the character of the urinary shoots.

In pyelitis and suppurative nephritis the orifice of the corresponding ureter is generally distorted and elongated, or swollen and pouting. In calculous pyelitis the orifice may be contracted to a pin head, or it may be widely dilated, the condition varying at different examinations of the same case. When the disease is unilateral it is easy, by a cystoscopic examination, to demonstrate the side affected, because nearly always there is some alteration in the shape of the orifice as well as in the appearance of the mucous membrane in its neighbourhood. In early renal tuberculosis the lesions at the orifice vary, but they always show some deformity or distortion of the mouth, and usually thickening or retraction of one or both lips, while the mucous membrane in the neighbourhood of the orifice is congested and swollen. The lips may be occupied by small pale nodular projections (tubercles), or there may be small erosions or minute ulcers.

Obituary.

ON SERVICE.

LIEUTENANT JOHN WILSON, M.B., CH.B. ED.,
ROYAL ARMY MEDICAL CORPS.

WE regret to announce the death of Lieutenant John Wilson, Royal Army Medical Corps, who was killed on duty in France on 9th March. A son of the late Mr. Adam Wilson, of Armadale, Lieutenant Wilson was a student and graduate of Edinburgh University, where he took the degrees of M.B., Ch.B. in 1909. Before the war he was in practice in Hamilton. He was attached to the 10th (S.B.) Duke of Wellington's West Riding Regiment.

ANDREW FAIRLIE WILSON, L.R.F.P.S. GLASG.,
STIRLING.

WE regret to announce the death of Mr. A. F. Wilson, which took place at his house in Stirling on 28th February. Mr. Wilson, who was 64 years of age, was a native of Stirling, where he received his early education, going on to Glasgow University for his medical studies. After taking his qualification in 1882 he went to the Orkney Islands, where for two years he was engaged in private practice. He then returned to Stirling, and in 1889 he was appointed medical officer of health for the burgh. He was chosen as medical adviser to the Burgh Committee under the National Insurance Act, and latterly he had acted as tuberculosis officer for the Town Council. Mr. Wilson, who was a bachelor, had for some time been in failing health, but the illness from which he died had lasted only a few days.

THOMAS MILLER, M.B., C.M. GLASG.,
LENNOXTOWN.

WE regret to announce the death of Mr. Thomas Miller, which took place in Lennoxton on 4th March. He was born at Bridge of Allan about seventy years ago, and studied medicine at Glasgow University, where he took the degrees of M.B., C.M. in 1875. After graduation he acted as house physician and house surgeon in the Western Infirmary, Glasgow, and shortly afterwards settled in practice in Lennoxton, where for nearly forty years he held a prominent position. His public appointments included those of parochial medical officer, medical officer of health, and public vaccinator for the Campsie district.

WILLIAM MURDOCH RAE, M.B., CH.B. GLASG.,
CROSSHILL.

WE regret to announce the death of Mr. W. M. Rae, which occurred at his house in Crosshill on 10th March. Mr. Rae was a native of Glasgow, but spent part of his boyhood in Gourrock. He studied medicine at Glasgow University, and took the degrees of M.B., Ch.B. in 1904. Beginning practice in Ibrox, he moved about five years ago to Crosshill, on the death of the late Dr. Wallace, to whose practice in Govanhill and Crosshill he succeeded. He had been in his usual health, and was attending to his practice until the afternoon of 10th March, when he was seized with the symptoms which ended fatally a few hours later. Mr. Rae is survived by a widow and two grown-up daughters.

CURRENT TOPICS.

THE FINLAYSON LECTURE.—Our readers will note with appreciation that the Finlayson lecture, which we publish in this issue, has this year been delivered by M. Weinberg, the distinguished head of a department of the Institut Pasteur. It is an honour to the Faculty that M. Weinberg, in the midst of his pre-occupation with war work, should have come to our northern shores to deliver his lecture before its Fellows; and it is a tribute to the solidarity of the *entente* that the investigations upon which the lecture is founded should have been begun in British military hospitals. The subject of gas gangrene is one of much importance to all military surgeons, and M. Weinberg's brilliant account of the researches which have established its etiology, and of the resulting preventive and therapeutic measures which have already done much to diminish its frequency, will be read with the greatest interest by all who have the progress of surgery at heart.

APPOINTMENTS.—The following appointments have recently been made:—

J. Gilchrist, M.D.Ed. (M.B., 1895), Assistant Surgeon to the Ophthalmic Institute, Glasgow Royal Infirmary, to be Ophthalmic Surgeon, Victoria Eye Infirmary, Paisley, *vice* N. G. Cluckie, M.D.Glasg. (M.B., 1880).

N. G. Cluckie, M.D.Glasg., to be Consulting Ophthalmic Surgeon to Victoria Eye Infirmary, Paisley.

A. Wood Smith, M.D.Glasg., F.R.F.P.S.G., to be Medical Superintendent, Royal Hospital for Sick Children, Glasgow.

Royal Army Medical Corps (16th February): To be temporary Lieutenant—H. E. Whittingham, M.B., Ch.B.Glasg. (1910).

18th February: To be temporary Major—R. D. Hotchkis, M.D.Durh. To be temporary Captain—Temporary Lieutenant

W. D. Dunlop, M.B., Ch.B.Glasg. (1910). To be temporary Lieutenants—W. M. Buchanan, M.B., Ch.B. (1911); D. J. Clark, M.B., Ch.B.Glasg. (1909).

21st February: To be temporary Captains—Temporary Lieutenants H. C. Highet, M.D.Glasg. (M.B., 1888); A. Scott, M.B., Ch.B.Glasg. (1907), late surgeon, R.N.

23rd February: To be temporary Lieutenants—H. M. Wilson, M.B., Ch.B.Glasg. (1908); J. L. Cochrane, M.B., Ch.B.Glasg. (1909); H. N. Rankin, M.B., Ch.B.Glasg. (1909); R. Nichol, M.B., C.M.Glasg. (1890); W. A. Muir, M.B., Ch.B.Glasg. (1908).

25th February: To be temporary Captains—Temporary Lieutenants J. A. G. Burton, M.B., Ch.B.Glasg. (1909); F. J. Henry, M.B., Ch.B.Glasg. (1901), F.R.C.S.E.; H. B. Smith, M.B., C.M.Glasg. (1894); H. J. Milligan, M.B., Ch.B.Glasg. (1905); G. Muir, M.B., Ch.B.Glasg. (1905).

7th March: To be temporary Lieutenants—J. B. Robertson, M.B., C.M.Glasg. (1893); J. B. Stevenson, M.B., Ch.B.Glasg. (1903); W. J. Dilling, M.B.Aberd. (Glasgow University).

9th March: To be temporary Captains—Temporary Lieutenants T. Lovett, M.B., Ch.B.Glasg. (1903); J. F. Steven, D.S.O., M.B., Ch.B.Glasg. (1914); S. J. Henry, M.B., Ch.B.Glasg. (1908); J. McCulloch, M.B., Ch.B.Glasg. (1914); R. A. Steven, M.B., Ch.B.Glasg. (1913).

10th March: G. A. Bannatyne, M.D.Glasg. (M.B., 1888), F.R.C.P., to be temporary Lieutenant-Colonel whilst employed at Bath War Hospital.

13th March: To be temporary Lieutenants—J. McHaffie, M.D.Glasg. (M.B., 1897); A. F. Wilson-Gunn, M.B., C.M.Glasg. (1896); J. R. Brown, M.B., C.M.Glasg. (1897); A. R. Mitchell, M.D.Glasg. (M.B., 1889).

R.A.M.C. Territorial Force (5th March): Lowland Field Ambulance—Lieutenant (temporary Captain) N. Macinnes, M.B., Ch.B.Glasg. (1907), to be Captain.

APPOINTMENT FOR SURGEON-GENERAL BABBIE, V.C.—Surgeon-General W. Babbie, V.C., has been appointed to assist Surgeon-General Sir A. Keogh, Director-General, Army Medical Services, especially in the work of supervision of invaliding and all questions connected with the physical fitness of the troops at

home. A native of Dumbarton, Surgeon-General Babbie was born in 1859, and after graduating in medicine at Glasgow University in 1880, he entered the Army Medical Service in 1881. Surgeon-General Babbie has seen a good deal of active service, and won the V.C. in the South African War. The courageous act which brought him this high honour took place at Colenso on 15th December, 1899. The wounded of two batteries of the R.F.A. were lying in an advanced donga close to the rear of the guns without any medical officer to attend to them, and when a message was sent for assistance Surgeon-General (then Major) Babbie rode up under a heavy rifle fire, his pony being hit three times. He attended to all the wounded, going from place to place under heavy fire. Later in the day Major Babbie went out with Captain Congreve to bring in Field-Marshal Roberts's son, Lieutenant Roberts, who was lying wounded on the veldt. This was also accomplished in face of a heavy rifle fire. Surgeon-General Babbie was present at all the actions for the relief of Ladysmith. He has held many of the highest posts in the Army Medical Service at home, and also held the post of Director of Medical Services in India.

F.R.S. FOR PROFESSOR G. G. HENDERSON.—The many students, now members of the medical profession, who owe to Professor G. G. Henderson of the Technical College most of their knowledge of chemistry will rejoice to learn that at the last meeting of the Royal Society for the election of Fellows he was one of those upon whom that honour fell. From the time when, as lecturer and demonstrator in chemistry in Glasgow University, he earned the admiration and regard of students of medicine and of science, Professor Henderson's career has been one of unbroken success and high scientific distinction. He is a D.Sc. of his own University, an LL.D. of St. Andrews; he was for eight years honorary secretary, and then chairman, of the Scottish Section of the Society of Chemical Industry; and in 1914-15 he was President of the Society. His papers in organic and inorganic chemistry are numerous and of great consequence; and he is the author of a very valuable *Report on the Chemical Industries of the West of Scotland*. His former medical students will gladly associate themselves with his many friends

in their congratulations upon his attainment of the highest British scientific honour.

NURSE KATE BELL.—The death of Nurse Kate Bell, in her seventy-third year, will be felt as a personal loss by many more than her immediate associates in the Royal Infirmary. She was a link between its present and its past; she had almost completed her fiftieth year of faithful service within its walls; and in that long period she had seen many changes in medical practice, and had become known and esteemed by successive generations of nurses and students. She worked first under Lister, after which she was staff nurse under Dr. Dewar, then under Dr. (now Sir William) Macewen, and, finally, on the medical side, under Dr. Alexander Robertson. On leaving Dr. Robertson's wards, in the early nineties, she went to the "corridor," when she was placed in charge of sick nurses, and in this lighter occupation she continued till shortly before her death. She was held in the greatest regard by all under whom she worked; Lister thought so highly of her that he asked that she might be present when the freedom of the city was conferred upon him; and at the opening of the new buildings in 1914 she was presented to Their Majesties the King and Queen. In all her long and single-minded career of service she was held in universal affection and respect, and her steadfast and steadying example acted upon those around her with the influence of a great moral force.

WAR HONOURS FOR GLASGOW GRADUATES.—At an investiture held on 19th February, His Majesty the King invested with the insignia of their Orders a number of officers recently decorated for distinguished service. Among them was Lieutenant J. F. Steven, R.A.M.C., M.B., Ch.B.Glasg., upon whom, as narrated in a former issue, the D.S.O. has been conferred for distinguished service in France.

The names of several Glasgow graduates appear in Sir Ian Hamilton's despatch.

Captain William Rutherford, R.A.M.C., a student of Glasgow University, took the degrees of M.B., Ch.B. in 1909, was senior resident assistant in the Western Infirmary, and was for some

time assistant to the Professor of Anatomy at Glasgow University. Settling thereafter in Lancashire, he was for a time school medical officer in Liverpool, and, before the war, held the post of school medical inspector to Lancashire County Council. He was mentioned in despatches for showing conspicuous gallantry, zeal, and coolness under shrapnel fire at Suvla Bay, and has since been awarded the Military Cross.

Captain C. C. Fitzgerald, R.A.M.C., also awarded the Military Cross, was noted as an athlete during his student days at the University and Anderson's College, playing a brilliant game at three-quarter in the University Rugby team. He played thrice for Glasgow against Edinburgh in the inter-city trials, and in 1902 he played for Ireland against England. He took the triple qualification in 1906 and the D.P.H. of Dublin in 1910, and, before the war, he held the post of assistant medical officer of health in Salford.

Captain Alexander Glen, R.A.M.C., mentioned in despatches, is a native of Glasgow, and took the degrees of M.B., Ch.B. at the University in 1913. Thereafter he was house physician and house surgeon in the Western Infirmary, and received his commission at the outbreak of war. He was with the Gallipoli force from the landing at Suvla Bay until the evacuation.

We regret that in our last issue Captain Neil Guthrie, M.B., Ch.B.Glasg., should have been inadvertently referred to as being mentioned in Viscount French's last despatch. Captain Guthrie, who was attached to the New Zealand Force, was mentioned in Sir Ian Hamilton's despatch, and his gallantry has brought him the further award of the Military Cross.

A supplement to the *London Gazette*, issued on 24th February, contains a list of honours conferred by the President of the French Republic and by the King of the Belgians. Among those honoured by France is Colonel Sir W. B. Leishman, C.B., F.R.S., M.B., C.M.Glasg., whose name and whose invaluable services in the war are too well and too widely known to need further comment. They have brought him the Croix de Commandeur of the Legion of Honour. In the Belgian list occurs the name of Surgeon-General Robert Porter, M.B., C.M. Glasg. Surgeon-General Porter, who took his degree in 1879, is on the General Headquarters Staff, and was mentioned in Viscount French's despatch of 31st May, 1915. The King of

the Belgians has bestowed upon him the decoration of Com-mandeur of the Order of the Crown.

PROPOSED WEST OF SCOTLAND HOSPITAL FOR LIMBLESS SOLDIERS AND SAILORS.—In connection with the proposed establishment of a hospital in the West of Scotland for limbless soldiers and sailors, a deputation waited on the military authorities at the War Office on 3rd March. The only existing institution at which men can be fitted with artificial limbs is Queen Mary's Auxiliary Hospital at Roehampton, and it has been felt that Scottish soldiers and sailors should not have to travel so far after amputation.

The deputation, which consisted of Lord Provost Dunlop, the Marquis of Ailsa, the Marchioness of Bute, Sir William Macewen, Professor and Mrs. Archibald Barr, Mrs. Pollock of Ayr, Miss Anderson of Barskimming, Messrs. David M'Cowan, John Reid, Harold Yarrow, and John S. Samuel, was received at the War Office by Surgeon-General Sir Alfred Keogh, Director-General of Medical Services; Surgeon-General Russell, D.D.G.; and Major-General Sir Charles Crutchley, K.C.V.O.

Lord Provost Dunlop, Sir William Macewen, and others stated the case for the deputation, and explained that the proposed scheme could only be proceeded with if the Provisional Committee in charge of the matter could be assured that the hospital to be established would enjoy the same privileges with regard to grants, &c., and receive the same recognition from the naval and military authorities as the hospital at Roehampton enjoyed. After a most satisfactory interchange of views, Sir Alfred Keogh gave the requisite assurances, and stated that the military authorities would welcome the establishment of such a hospital in the West of Scotland, more particularly in view of the fact that the accommodation at Roehampton was more than overtaxed. Something like 1,600 cases were waiting for admission.

The deputation had also a meeting in the afternoon at the Admiralty with the committee of Roehampton Hospital—Major Sir Francis Lloyd presiding—and those present included Lord Balfour of Burleigh and Sir Reginald Macleod. The Lord Provost and Sir William Macewen, at this meeting, explained that the hospital they proposed to establish in

the West of Scotland would in no sense be an adjunct of the institution at Roehampton, but would be a separate and independent establishment, amenable only to the naval and military authorities, and that the present conference had been suggested by the Roehampton committee in order to give the deputation the benefit of their experience of the class of cases to be dealt with and the kind of limbs found to be most useful. A general conversation ensued on these points, and the deputation afterwards visited the hospital at Roehampton, and were much interested in what they saw.

Definite progress is now being made with the scheme in Glasgow, under the guidance of the Lord Provost and the Provisional Committee.

BEQUEST TO GLASGOW MEDICAL CHARITIES.—The will of Mrs. Elizabeth Gilchrist or Laurie, widow of the Rev. T. M. Laurie, minister of Dowanhill U.F. Church, disposing of an estate of £10,200, instructs her trustees, after the payment of certain private legacies, to divide the residue equally among the following institutions:—Glasgow Royal Infirmary, the Western Infirmary, Victoria Infirmary, the Royal Hospital for Sick Children, the Royal Glasgow Asylum for the Blind, and the Mission to the Outdoor Blind, Glasgow.

ROYAL SAMARITAN HOSPITAL FOR WOMEN.—The annual meeting of subscribers to the Royal Samaritan Hospital for Women was held in the Merchants' House on 15th March, Mr. William Robertson presiding. Mr. Thomas Macquaker, honorary secretary and treasurer, submitted the annual report, in which it was stated that the past year had been one of anxiety to the directors owing to the war, and to the fact that a number of the medical staff were absent on military duty. The total number of patients treated during the year (including in many cases the wives of soldiers at the front) had been the largest on record. The directors acknowledged their indebtedness to the medical staff, the matron, and nurses, on all of whom extra work and care had devolved. The number of patients treated during the year was as follows:—In the Hospital at the beginning of the year, 72; new

cases admitted, 1,480; and out-patients treated, 2,356. The total number of patients treated was 3,908, being an increase of 475 as compared with the previous year. The average period of residence of in-patients was twenty-two days. Of the cases treated to a conclusion 18 died, being about 1 per cent of the total number. The financial statement showed that the ordinary income was £5,643, and the expenditure £6,216, leaving a deficiency of £573. The extraordinary income, consisting of special donations and legacies, amounted to £958, and after paying the deficiency in the ordinary income a balance was carried to the capital and building fund account.

The chairman, in moving the adoption of the report, referred to the splendid work which was being carried on by the Hospital. While the financial position of the institution was, he said, fairly satisfactory, the directors thought that, in view of the fact that there was at present a large amount of money in circulation in the community, they should be better supported by the working classes and by the churches.

GLASGOW LOCK HOSPITAL.—The annual meeting of subscribers to the funds of the Glasgow Lock Hospital was held in the Religious Institution Rooms, Glasgow, on 25th February, Dr. James Erskine in the chair. The annual report stated that 309 patients were admitted during the year, compared with 300 in 1914 and 240 in 1913. Of the patients admitted 201 were received for the first time, 75 for the second, 26 for the third, 5 for the fourth, and 2 for the fifth time. In 1915, up to October, when the dispensary was opened, there were 292 out-patients, making 1,069 visits. These patients had all at one time been in-patients, 209 being old in-patients, and 83 being in-patients transferred to the out-patient department. The financial statement showed that the ordinary income was £1,353 and the ordinary expenditure £1,611, leaving a deficiency of £258, which compared with a deficit of £198 in 1914. This deficiency was partly accounted for by reduced income from investments, but principally by war prices affecting house charges. Extraordinary income consisted of legacies amounting to £650, and after deducting special expenditure there was a debit balance of £569 to be carried to capital.

The chairman, in moving the adoption of the report and

financial statement, said the outstanding feature of the work of the year was the opening of an outdoor dispensary in connection with the hospital. The directors found that it was working very well. He was of opinion that they should have had an outdoor department many years ago.

GLASGOW ROYAL ASYLUM.—The annual meeting of contributors to Glasgow Royal Asylum was held on 17th February in the Religious Institution Rooms, Mr. Hedderwick, Dean of Guild, in the chair. Dr. L. R. Oswald, physician-superintendent, presented his annual report. It stated that the admissions numbered 93, compared with 116 in the previous year. In 26 cases there was a history of previous mental illness, and in 30 an inherited tendency to insanity or nervous disorder. With regard to etiology, 11 cases were attributed to alcoholism, 9 to bodily ill health, 10 to epochal periods of life, and 13 to worry or stress. Twenty-five of the 93 admissions were voluntary patients. The legal processes necessary before a patient who did not seek treatment voluntarily could be admitted to a mental hospital had done a great deal towards causing the public to avoid an insane person, and to keep up the belief that mental disorders were in some way different from other bodily diseases. He was convinced that a relaxation of these, with proper safeguards to individual liberty, would be a great forward movement. The Press could be of the greatest assistance in helping to break down the prejudice against mental hospitals, in emphasising the need for early treatment of incipient cases, and in urging upon the Legislature to give facilities for the care of advanced cases without resort to cumbersome legal procedure and certification. After stating that the number of patients discharged was 65 and the number of deaths 37, Dr. Oswald said that he was frequently asked if the war was causing an increase in the number of cases of mental disorder. He had not had access to statistics for large numbers or wide areas, nor did he think that such were yet available. He could only state that up to the present time, to his knowledge and from his personal experience, there had been no such increase. If there was no increase of actual insanity in spite of the existence of such mental and moral causes connected with the war as tended

to produce it, one explanation might be found in the abundance of occupation, and in the resulting increased material prosperity now enjoyed; and another and equally important explanation was to be found in the absorbing interest of the people in the national crisis, which had put self in the background, had thrown many who had previously no vocation in life into active social and philanthropic work for others, and had thus increased and not diminished the mental stability and general health of the nation. Sacrifice and unselfishness built up and strengthened character, and the war had shown to what an unsuspected extent those qualities were present in our national life. He did not desire for a moment to minimise the sorrow caused by the war, but it had seemed to him that the grief of those whose friends had made the greatest sacrifice for their King and country, while not less acute, had been less depressing to the sufferers than the grief following other bereavements. Here, again, we had the effect of the feeling of sacrifice, and the expression of the loss was, in the words of Rossetti, "half carol and half cry." Indeed, the saddest cases he had seen had been those in whom not the war itself, but the barbarous manner of its conduct by the enemy and the murder of innocent women and children had produced morbid depression, which was closely allied to actual insanity. The sufferers had usually been women of high and unselfish character, who, in the perpetration of such deeds by a nation believed to be highly cultured and civilised, saw a negation of God and a disturbance of their deeply-rooted Christian beliefs. Probably only the proclamation of peace would bring relief to those sufferers. The after-effects of such an event as a European War on the health of the nation and the individual could not be predicted while it was in progress, but that there would be a reaction such as always followed a long and sustained effort taxing the powers to the fullest he had no doubt. It was incumbent on us, in view of the struggle being prolonged, to husband our reserves of nervous strength, and not to give way to emotional states or be swayed by panic, so that when the test came we might be able to endure.

INFANT HEALTH VISITORS' ASSOCIATION.—The annual meeting of the Glasgow Infant Health Visitors' Association was held on

2nd February in the City Chambers, Bailie Smith presiding in the absence of the Lord Provost. The annual report, submitted by Miss Aikman, stated that there were 7,336 attendances on the doctor at the infant consultations. At the dinner table for nursing and expectant mothers there was a daily attendance of from 20 to 30, and a marked improvement in the health of mothers and children had been noted. Applications for milk in 1915 numbered 184, compared with 416 in 1914. The difference was stated to be due to the fact that work was plentiful and wages good, and also to the Government allowance to soldiers' wives and the operations of the Soldiers' and Sailors' Families Association. The Advisory Committee had attended to all necessitous cases, and many mothers and babies had improved in health as the result of the help given. Details were given of the work carried on by the nineteen branches of the Association, which had over 400 voluntary visitors. The infants under visitation numbered 5,684, as compared with 5,429 in the previous year. The number visited until they attained the age of 1 year was 2,051, as compared with 1,664 in 1914.

The adoption of the annual report and of the report of the Advisory Committee was formally moved by the chairman, and seconded by Treasurer McMillan, who said that one of the objects of the Association was to assist the Corporation to reduce infant mortality in Glasgow, and no more valuable work could be undertaken. In many cases valuable lives were being saved to the city through the ministrations of the ladies of that Association. He thought it a pity that the food of the children should depend upon wages. It was essential that a sum should be first set aside to give the infants a good start, for on their treatment during their tender years depended largely their future physical welfare. The Children Act of 1908 gave the authorities power to punish neglectful parents, and in the latest extension of the Births Notification Act the Medical Officer and Health Committee of a city like Glasgow had power to assist a mother not only before the birth of her child, but to assist the child practically until it attained the age of 5 years, and that, he believed, would be fruitful of great good. He noted also a decrease in the infant mortality compared with a year ago, and that fact reflected creditably on the work of the Association. The work of the health visitors was of great importance. There

were in charge of children many young girls who knew little or nothing about how children should be reared, and the health visitors could render service by giving advice, showing how the children should be cleaned and fed. In that way they could not fail to render a great deal of good to many families. The Association was doing splendid work.

ROYAL ALEXANDRA INFIRMARY, PAISLEY.—The annual meeting of subscribers to the Royal Alexandra Infirmary, Paisley, was held on 6th March in the Hall at the Nurses' Home. Mr. J. Armour Brown presided.

The director's annual report, submitted by Mr. John Abercrombie, honorary secretary, showed that 1,629 patients (533 medical and 1,096 surgical) were treated in the Infirmary last year, representing an increase of 72. Of these 1,364 were cured, improved, or dismissed. The total income was £9,308, 3s. 8d., an increase of £1,684, 10s., and the expenditure £9,561, 6s. 6d., an increase of £1,372, 11s. 2d., over the preceding year. The net result of the year's intromissions was a deficit of £343, 2s. 10d. During the period covered by the last report, 88 British and Belgian soldiers were admitted to the house, and there had since been admitted three parties of 90, 98, and 80 British soldiers, making a total admission of 356 military patients. The directors recorded their indebtedness to the Scottish Branch of the Red Cross Society, the officials at Canal Station, and the local and district Voluntary Aid Detachments, for the admirable manner in which they detained the military patients and conveyed them in comfort and safety to the Infirmary, and expressed their appreciation of the good work done by the local members of the Red Cross Society. A sum of £2,250 had been added to the endowment fund—£1,250 to endow a bed in memory of the late Mr. Robert Cochran, R.S.W., and £1,000 legacy by the late Mr. James H. Dunn, writer. At the end of the year this fund amounted to £89,445, 10s. 10d., exclusive of one-fourth of the residue of the estate of the late Mr. James Cowan of Ross Hall, one-half of the residue of the estate of the late Mr. James Jackson, and the whole residue of the estate of the late Mrs. Jessie Campbell or Barclay.

The various reports were approved, and subsequent speakers

referred to the splendid work that was being done in the Infirmary towards the relief of suffering.

GREENOCK INFIRMARY.—The one hundred and seventh annual meeting of the subscribers to Greenock Infirmary was held on 17th February, Sir Hugh Shaw Stewart presiding. In moving the adoption of the report, the chairman said that its most outstanding feature was the reference to the house-to-house collections, which had brought in the large sum of £4,000. Other principal items in the revenue account included £1,000 by Mr. Robert Macpherson for the endowment of the Richebourg bed, a legacy of £300 from the late Miss Agnes Fleming, and £266 from the late Misses Wark. The directors and officials were to be congratulated on the thorough manner in which the scheme of house-to-house collection had been carried out. The year had opened with a debt due to the bank of £1,100, and not only had this been paid off but the not inconsiderable sum of £1,565 had been placed to the reserve account. One other matter which should not be overlooked was that, although they had been placed in this satisfactory position so far, there was practically an annual deficit of some £1,700. He should add that one other reason why they still wanted all the subscriptions they could get was that the increased prices for the necessaries under all the headings for the provisioning of the house had inevitably raised the general expenditure.

Mr. Harry Buchanan, chairman of directors, in seconding the motion, said that in connection with the working of the house not even a complaint had been made, which said wonderful things for the attention of the doctors and nurses who remained to form the depleted staff. The workmen of the district had done splendid work during the year, their contributions showing an increase of £188, and he believed that their feeling towards the institution was warmer than it had ever been before.

LITERARY INTELLIGENCE.—Messrs. H. K. Lewis & Co., Limited, announce for early publication the following books:—*Localisation by Roentgen Rays and Stereoscopy*, by Sir James Mackenzie Davidson; it is fully illustrated with stereoscopic and other pictures. *The Pathology of Tumours*, by Dr. E. H. Kettle, with

126 illustrations from original drawings and other materials. A new volume of essays, by Dr. T. B. Scott (author of *The Road to a Healthy Old Age*), entitled *Modern Medicine and some Modern Remedies*, to which Sir Lauder Brunton has contributed a preface. *Notes on Galvanism and Faradism*, by Dr. E. M. Magill, intended for masseuses and those employed in the practical administration of electrical treatment, and fully illustrated. *The Adolescent Period: Its Features and Management*, by Dr. Louis Starr. An important new edition (the fourth) of *Mentally Deficient Children*, by Dr. G. E. Shuttleworth and Dr. W. A. Potts; this has been thoroughly revised and in part rewritten, while the illustrations have been increased. A new (seventh) edition of Gould's well-known *Pocket Medical Dictionary*, containing an additional 1,000 words (35,000), is also just ready. A seventh edition of Binnie's *Operative Surgery*, thoroughly revised and fully illustrated, will be ready in a few weeks; also a new edition of Dr. E. M. Brockbank's small book on *Heart Sounds and Murmurs*; this has been completely rewritten and enlarged, and is entitled *Practical Points in the Diagnosis and Treatment of Heart Disease*. A small but important new book by Dr. Russ, on *A New Treatment for Gonorrhœa*, is also in the press. A thoroughly revised and greatly enlarged edition of Dr. Herbert Tilley's *Diseases of the Nose and Throat* is in preparation.

Sir St. Clair Thomson has passed for immediate publication a second and enlarged edition of *Diseases of the Nose and Throat*. This text-book has been rigorously revised, and expanded by some 70 pages. A description of "Suspension laryngoscopy" has been introduced into the new edition, and the chapter on "Removal of the tonsils" has been entirely rewritten. The new edition will be published by Messrs. Cassell & Co., Limited.

A new volume, entitled *More Minor Horrors*, by Dr. A. E. Shipley, is now in the press, and will be published by Messrs. Smith, Elder & Co. in the early spring. It is, in a sense, a sequel to the *Minor Horrors of War*, a third edition of which is now in the course of preparation.

REVIEWS.

Encyclopædia Medica. Second Edition. Under the General Editorship of J. W. BALLANTYNE, M.D., C.M., F.R.C.P.E. Volume II: Aspiration to Chlorodyne. Edinburgh and London: W. Green & Sons. 1915.

THE second volume of the new edition of the *Encyclopædia Medica* is, like the first, of considerably larger size than its predecessor. The new articles are those on ateleiosis, by Dr. J. W. Ballantyne; bacteriology, by Dr. William Scott; Binet's and other mental tests, by Mr. W. B. Drummond; physiology and clinical investigation of the blood, by Dr. Goodall; and measurement of blood-pressure, by the same author. The older articles have been revised, and in some instances entirely rewritten, for the most part by their former authors. The volume contains many contributions of importance, among the most prominent both for their length and for their excellence being those already referred to on bacteriology and on the blood, and those on injuries and diseases of the bladder by Mr. Southam and Dr. W. E. Fothergill; on diseases of bone, by Professor Alexis Thomson; the composite article on the structure, functions, and diseases of the brain, of which the various sections are written by Drs. Alexander and Ninian Bruce, Dr. Kinneir Wilson, Dr. Risien Russell, Dr. R. A. Fleming, and Mr. J. M. Cotterill; that on diseases of the bronchi, by Drs. Voelcker, Watson Williams, and S. H. Habershon; and that on cataract, by Mr. G. A. Berry. Dr. Scott's article on bacteriology occupies some seventy pages, and in that space, brief for the magnitude of his subject, supplies a *précis* of the whole science remarkably complete, excellently adapted to the use of medical men, and illustrated by a beautiful series of colour plates. In the section on the brain, to which in all a hundred and thirty pages are given, perhaps the most notable article, where all are of outstanding merit, is that upon its structure and function,

written originally by the late Dr. Alexander Bruce, and revised and largely rewritten by Dr. Ninian Bruce. It will well repay reading even by those to whom the subject is thoroughly familiar, and cannot fail to increase the clearness with which the average man conceives the intricate cerebral relationships. The diagrams and illustrations which accompany it are sufficient materially to help the reader, and not so numerous as to confuse him. Admirably written, too, is Dr. Goodall's article on the physiology and clinical investigation of the blood, which may be highly commended as a clear and succinct account of the province with which it deals. The whole standard of the volume is maintained at a high level, and many of the shorter contributions, which can find no mention within the limits of a review, are deserving of equal praise. Both from the surgical and from the medical standpoint the second volume of the *Encyclopædia Medica* must be of great value to its possessor.

Urgent Surgery. Volume II. By FÉLIX LEJARS. Translated from the Seventh French Edition by WILLIAM S. DICKIE, F.R.C.S., and ERNEST WARD, M.A., M.D., F.R.C.S. Bristol: John Wright & Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited. 1915.

THE new issue of Volume II of M. Lejars' *Urgent Surgery* follows close upon that of Volume I, which we had the pleasure of noticing in a recent review. This volume deals with the genito-urinary organs, the rectum and anus, the strangulated hernias, and the extremities. It would not be easy to improve upon the book for the purpose of its use as a reference work for the operating surgeon, and as a guide for the practitioner less accustomed to major surgery. If it be possible to select a best part from a book of such general excellence then the sections dealing with the urgent surgery of the strangulated hernias may be chosen. This subject is usually dismissed in a few brusque sentences by authors of formal text-books of surgery, but in M. Lejars' work it is rightly deemed worthy of considerable space, and 115 pages of descriptive matter with several magnificent full-page illustrations are devoted to it. Mr. Dickie,

whose name is so familiar as the translator of previous issues, was compelled by military service to leave his task unfinished, and Mr. Ward has deputised in a creditable manner.

Manual of Minor Surgery and Bandaging (Heath, Pollard).
Fifteenth Edition. By H. MORRISTON DAVIES, M.D., M.C.
Cantab., F.R.C.S. London: J. & A. Churchill. 1914.

PRECISELY what position Heath's *Minor Surgery* occupied immediately after its first appearance more than fifty years ago it might now be difficult to discover, but, admittedly, it has been a standard work for more than a generation. Doubtless, such success as it had originally was owing to Heath, but the hands which have dealt with subsequent issues have been no less able. This fifteenth edition has been put forth by Mr. Morriston Davies, and it contains all the good points of its predecessors, with, in addition, the very latest developments of the subject. Matter that is out of date has, of course, been discarded, and work now coming within the scope of the house surgeon has been added. Drs. Dudley Buxton and Felix Rood are responsible for the section on anæsthetics, and their names are sufficient guarantee for its excellence. It is quite unnecessary to say more concerning the fifteenth edition of a book which had its beginning in pre-antiseptic days, and of which the successive issues have been so well abreast of advances in surgery.

Manual of Surgery. By ALEXIS THOMSON, F.R.C.S.Ed., and
ALEXANDER MILES, F.R.C.S.Ed. Volume I: General Surgery.
Fifth Edition. Volume II: Regional Surgery. Fifth Edition.
London: Henry Frowde and Hodder and Stoughton. 1915.

THE *Manual of Surgery* by Messrs. Thomson and Miles is now too well known—in Scotland, at least—to call for detailed description here. All the good points of earlier issues, and more, are to be found in the fifth edition. Some little increase in the size of the production is due to the addition of new

illustrations. The authors have been at considerable trouble to suit practitioners who may be familiar with only one nomenclature by using both the Basle and the older form in naming anatomical structures. In these two volumes the purely practical side is reduced to a minimum, since Volume III (which was reviewed in a fairly recent issue) is devoted exclusively to operative surgery. The *Manual of Surgery* has our whole-hearted recommendation.

Manual of Surgical Anatomy. By CHARLES R. WHITAKER, F.R.C.S.Ed. Second Edition. Edinburgh: E. & S. Livingstone. 1914.

THE second edition of Mr. Whitaker's *Surgical Anatomy* is slightly larger than the first. This has in no way, however, lessened the conciseness of this handy little work of reference. It is not to be expected that such a small book would deal in detail with all points that might be included under its title; but, on the other hand, its convenient size, excellent arrangement, and good type do much to compensate for deficiency of minute detail. Whitaker's *Surgical Anatomy* is rapidly and deservedly becoming a well-known and widely read work.

Applied Anatomy. By GWILYM G. DAVIS, M.D., M.R.C.S., LL.D. Third Edition. Philadelphia and London: J. B. Lippincott Company. 1915.

WHEN an anatomist speaks on the subject of applied anatomy he has considerable ground for claiming a respectful hearing, but when the anatomist also happens to be a distinguished orthopædist, then we listen to an authority. Dr. Gwilym Davis is one of America's leading orthopædic surgeons, and a former Professor of Applied Anatomy. His *Applied Anatomy* has now reached its third edition, and in less than five years from the appearance of the first. That this is indicative of no mean success will be granted when it is remembered that the subject does not undergo very marked changes in a brief period, and

that the book is large and production therefore costly. The new issue is a revision of the second edition, with added matter, and the cuts have been improved. Descriptions are everywhere clear, and are written up in vivacious American style, which occasionally sounds quaint to our ears, while the illustrations, many of them in colour, always bring out sharply the points to be emphasised in the discussion. The work is to be highly recommended as a sound text-book of applied anatomy, both for the surgeon in practice and for the student.

Scheme for Dealing with Tuberculous Persons. By BARTY KING, M.A., M.D., M.R.C.P. London: John Bale, Sons & Danielsson, Limited. 1915.

THE working out of this scheme has special reference to the County of London. Agencies and institutions dealing with tuberculosis are tabulated, and the development of the scheme shows how every type of case should be dealt with; charts of the scheme show this diagrammatically and clearly. Such a scheme is necessarily somewhat complicated, and would require abundant automatic lubrication and a minimum of "red tape" for its successful working. This difficulty does not, however, detract from the value of the scheme as an effective method of dealing adequately with all phases of the disease. The author rightly emphasises the fact that, both on medical and economic grounds, the prevention of consumption is better than its cure.

Diseases of the Rectum and Anus. By P. LOCKHART-MUMMERY, F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1914.

A WORK dealing with his specialty from the hands of such a well-known surgeon and author as Mr. Lockhart-Mummery is sure to command attention from the beginning. His object in publishing *Diseases of the Rectum and Anus* is to provide a practical guide to treatment, and few, we imagine, after reading his book, but will agree that the design has been satisfactorily accomplished. Naturally, much that appears in

most surgical text-books has had to be included, and is always well and fairly described; but the author has also found space for some of his own original work. His excision operation for hæmorrhoids is ingenious, and his procedure for complete removal of the rectum through the perineum, although now largely superseded by the abdomino-perineal operation, must still have its place for selected cases. No part of the body in a morbid condition gives more cause for alarming suspicions, on the part of both patient and medical attendant, than the lower bowel, and books such as this, which make for reliable diagnosis and thorough treatment, are to be placed in the forefront of surgical literature.

Ambidexterity and Mental Culture. By H. MACNAUGHTON-JONES, M.D., F.R.C.S.I. & Ed. London: William Heinemann. 1914.

THIS little brochure sets out to forward the cause of two equally and similarly trained hands against that of the present complementary arrangement.

Professor Macnaughton-Jones has marshalled much material from many and varied sources to present as argument, and interesting reading it makes in parts.

That our left hands are inferior members is the view held throughout, while the conception that the left hand is simply different from the right, and has a different function to perform, is thrust aside.

We cannot consider that the author has established, or even helped to establish, his case that a great increase of mental and other powers would result from the dexterising, or rather similarising of the two hands.

The tendency of all education to-day is to produce uniformity by the suppression of individuality, which can result only in uniformity and not efficiency, whether the objects of training be groups of children or pairs of hands.

The work reads pleasantly and easily enough, yet on completing our perusal of it we were assailed by the reflection that many more important problems awaited solution.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

EDITED BY ROY F. YOUNG, M.B., B.C.

M E D I C I N E.

Serum Therapy of Poliomyelitis. By Arnold Netter, Paris (*Archiv. de Med. des Enfants*, January, 1916).—In this paper the author records his experience of serum therapy in 32 cases of poliomyelitis extending over a period of five and a half years. The serum was obtained from patients who had passed through an attack of the disease six weeks to twenty-nine years previously, but he advises that subjects who have had the mischief three months to four years previously should be chosen. The blood must be withdrawn with aseptic precautions, and by means of the Wassermann reaction syphilis must be definitely negatived. As monkeys usually succumb to the malady experimentally induced, and as horse serum is entirely inert, no other variety than human serum is available. It is advised that the serum be injected intrathecally—6 to 13 c.c. at a time—on eight successive days, and naturally as soon in the course of the disease as possible. Experimentally it has been found that it is only by intrathecal injection of the serum that it exerts any prophylactic influence. Almost invariably the serum calls forth an inflammatory reaction of meninges, but this as a rule is unaccompanied by any clinical phenomena, though occasionally spinal pain, hyperæsthesia, rigidity of muscles of the neck, and a rise of temperature have resulted. These in Netter's experience have always subsided, but Hutinel and Darre believe that they have seen a fatal result ensue.

Of Netter's 32 cases, 6 made a complete and rapid recovery, 3 were practically cures, 7 showed marked improvement, 5 were slightly improved, 3 were unaffected, and of 8 who died in 7 the cause was due to extension of the infective process to the medulla.—LEONARD FINDLAY.

Gaucher's Disease in Infancy (*Archiv. de Med. des Enfants*, February, 1916).—Dr. Comby, of Paris, contributes an interesting editorial on the above subject, with a review of the recently recorded cases. He reports briefly an observation of his own in a girl of 11 years, who looked the picture of health but was the subject of a greatly enlarged spleen extending to the level of the umbilicus. There was no anæmia, but a leucopœnia, the whites numbering 3,000 per c.cm. Wassermann reaction was negative. Mercurial therapy was of no avail.

A case observed by Dr. Herrman (*Amer. Jour. of Med. Sciences*, 1913) affected a boy of 3½ years, who died shortly after splenectomy. A second observation of Herrman (*Trans. of Amer. Pediatric Soc.*, vol. xxvi, p. 238) refers to a boy of 14 years, who was first seen at the age of 7 years. From the age of 4 to 6 years enlargement of the abdomen had been noted; at 6½ years he suffered from abdominal pain and epistaxis. At the age of 7 years the spleen extended 6 c.cm. below the umbilical level; red blood cells numbered 4,390,000, and white cells 4,000 per c.cm., with 75 per cent hæmoglobin. At 10 years he suffered from severe hæmorrhage after the extraction of a tooth. Wassermann reaction negative. At the age of 13 years splenectomy was performed, and microscopic examination of the organ revealed areas of multinucleated endothelial cells.

Two cases in one family are recorded by J. H. Mason-Knox and H. Roswell Walk (*Amer. Pediatric Soc.*, vol. xxvi). The first was a girl of 9 months with an enormous spleen, red blood cells 5,200,000, and leucocytes 35,000 per c.cm., and 90 per cent hæmoglobin. At *post-mortem* examination the spleen weighed 865 grms.; it showed no evidence of lymphoid tissue, but large spaces filled with swollen cells. Similar areas were detected in the liver. The second case in this family was born subsequent to death of former, and had received the same name, and came under observation at the age of 7 months with identical clinical features, and on *post-mortem* examination similar splenic findings. — LEONARD FINDLAY.

Disabilities, including Injuries caused by Bullets, Shrapnel, High Explosives, &c. By A. Primrose, M.B., C.M. (*The Canadian Med. Assoc. Jour.*, October, 1915).—An analysis of 819 cases coming before a medical board at Canadian Headquarters, Shorncliffe, England, is given. The first class of disabilities are those existing before enlistment, but which have been aggravated by service.

1. Flat foot: the rejection of these cases is recommended, as the conditions of service increase the disability.

2. Varicose veins: a period of at least three months after operation is advocated.

3. Varicocele and hæmorrhoids are not considered so serious, but operation is recommended.

4. Hernia: the author considers it doubtful whether even three months after operation men are fit for the firing line. Those who have suffered a recurrence are permanently unfit for service at the front.

5. Heart disease: some cases have developed during service. These are recommended for less arduous work.

6. Men with predisposition to tuberculosis he considers should be rejected owing to the danger of an active condition becoming engrafted upon a healed lesion.

The second class are injuries received in action.

Gas poisoning: 96 cases were examined. These men were poisoned at Ypres on 23rd or 25th April, *i.e.*, before precautions against gas had been taken. Many cases were fatal within a few days; these before the present board were seen three months after the gassing. The symptoms were shortness of breath after exertion, or suddenly as during sleep. Excessive secretion with expectoration was troublesome, especially in the morning. Gastric irritability after solid food was common. Several cases gave a history of hæmorrhage from the bowel, with diarrhœa and hæmaturia. Physical examination was practically negative.

These cases show little sign of improvement, but it cannot as yet be said whether the condition is permanent or not.

Numerous and varied disabilities were caused by exposure to cold and wet in the trenches.

The symptoms shown by those suffering from nervous shock were tremor, rapid heart's action, exaggerated knee jerks; insomnia and anorexia and constant fatigue are common. Such cases require prolonged rest before they are again fit for duty.

Head injuries included 26 cases of the loss of an eye, and cases of separation of the retina or hæmorrhages. Perforation of the drum, with resulting otitis media, may result from the effect of high explosives.

There were several cases of stammering, a few of fracture of the skull; but it would seem that all cases in which a bullet perforates the cranium and brain result fatally.

Cases of concussion of the spine causing paraplegia of varying duration were seen.

Penetration of the lungs, with recovery: there were two such cases, and these did not suggest that there had been any hydrothorax, which has been said to accompany such cases.

Flesh wounds of the abdominal parietes were common, but there was no case of penetration of the abdominal viscera; and the author would infer that such cases are either uncommon or that such wounds are more frequently fatal than wounds elsewhere.

Injuries of the extremities were common, such as flesh wounds, injuries to bones, blood-vessels, and nerves. Whether the nerve injuries were due to complete severance or merely contusion is doubtful, and raises the question as to treatment by operation or otherwise.—JAMES SCOTT.

SURGERY.

Cholecystitis. By B. F. Zimmerman (*American Journal of Surgery*, January, 1916).—Experiments show that if organisms are injected into a healthy gall-bladder nothing may happen, but if there is obstruction to the free flow of bile, then intense inflammation may be set up. In practice it has been found that the principal source of infection of the gall-bladder is the intestinal tract. Organisms reach the gall-bladder from the intestine *via* the portal circulation and the liver. The chief intestinal lesions likely to produce cholecystitis are typhoid fever and appendicitis. Less common causes are gastric and duodenal ulcers, acute catarrhal processes, and infection through the systemic circulation.

Cholecystitis may be present without the classical symptoms of pain, vomiting, and jaundice. Ten per cent of adult patients complaining of gastric symptoms have cholecystitis. The gastric symptoms are reflex, and due to the gall-bladder and stomach both having branches from the pneumogastric nerve. Pain varies from mild epigastric discomfort to acute gall-stone colic; the latter arises from the passage of solid or semi-solid material through the ducts. There is usually a point of tenderness to the side of the eleventh dorsal vertebra. Fever is

usually not present in chronic cases. When jaundice occurs it indicates that a stone has lodged in the hepatic or common duct.

Practically all cases of cholecystitis and 80 per cent of cases of gall-stones should be treated by cholecystectomy according to Mayo. In neurasthenics operation should be a last resort. Their complaints continued after operation will prevent other patients undergoing what, for them, is sound treatment. Cholecystectomy should not be performed during an acute attack of cholecystitis.

—CHARLES BENNETT.

The Surgery of the Enlarged Prostate. By Graham Simpson (*The British Journal of Surgery*, January, 1916).—The results of operation for enlarged prostate depend very largely on the stage of the disease at which patients are sent to the surgeon. The arguments in favour of operation at an early stage are that then there is a low mortality-rate, the time in bed is not more than say for gastro-enterostomy, and, if palliative treatment is adopted, it cannot be said that the patient may not have to be operated on later for retention, cystitis, or hæmaturia. The arguments against are that many patients go for years with occasional catheterisation, and that the operation may be done later if necessary. The author believes that the surgeon may conscientiously tell the patient that if the prostate is removed early he will run only a slight risk, and if the operation is successful he will have absolutely normal micturition, except that he may have to get up once or twice during the night.

Of 26 cases operated on by the author, 2 died as a result of the operation; 5 have not been traced; 4 have died since; and in 3 of these it is known that there was no recurrence of urinary symptoms; 2 remained well for some years and then were lost sight of; the results in the remaining 13 cases, the author thinks, may be considered excellent, and justify the early operation.

—CHARLES BENNETT.

OBSTETRICS AND GYNÆCOLOGY.

Etiology of Uterine Prolapse and of Cystocele (*Dublin Journ. Med. Sciences*, January, 1916).—Dr. Fitzgibbon read a paper on this subject before the November meeting of the Obstetric Section of the Royal Academy of Medicine in Ireland. He dealt with the normal supports of the pelvic viscera, and considered the visceral layer of pelvic fascia to be the essential structure supported by the levator ani muscles. That laceration of the perineum, even involving the levator ani, had no predisposing influence towards prolapse was certain, though it would allow cystocele to develop if otherwise able to do so. He believed that prolapse of the uterus was due to interruption of the fibres of the fascia that were attached to the vaginal fornices and the cervix uteri in what constituted the true parametric tissue, that cystocele was a hernia of the bladder through the pelvic fascia in front of the cervix, where the fascia passed between the vagina and the base of the bladder. He thought the viscera could be supported by the reunion of the fascia without interposing the uterus, and that the curative element in the present-day operations was the high amputation of the cervix, in covering the stump of which the pelvic fascia was caught in and united firmly to the uterus.—E. H. L. OLIPHANT.

The Origin of the Lower Uterine Segment (*Dublin Journ. Med. Sciences*, December, 1915).—Dr. Hastings Tweedy read a paper before the Obstetric Section of the Royal Academy of Medicine in Ireland at the December meeting, in which he advanced the opinion that the growth of the cervix was due to pressure. The endo-peritoneal tissue forms the true boundary between the cervix and body, and constitutes the tendinous extremities of the uterine fibres. Until this tissue has been put out of action, either by rupture or by opening of the os internum, there can be no pressure exerted on the cervix. He showed that the dilatation of the internal os was an early phenomenon of pregnancy, and that this dilatation permitted the ovum to pass through and press directly on the cervix. Continuous pressure on the cervix caused a rapid hypertrophy, and this law obtains in the unimpregnated as well as in the impregnated uterus. The cervix does not stretch, but rather grows, and the growth of the lower uterine segment has its complete counterpart in the growth of the supra-vaginal portion of the non-impregnated "procidentia uteri."

The President, Dr. Fitzgibbon, concurred in these views which helped to decide the controversy over Bandl's and Müller's rings.—E. H. L. O.

Double Nuchal Displacement of Arms in a Footling Presentation. By Dr. Copeland, Toronto (*Surgery, Gynaecology, and Obstetrics*, January, 1916).—Double dorsal displacement of the upper extremities is an unusual complication, and is not mentioned in a considerable proportion of modern text-books. Dr. Copeland's patient was a primipara aged 29, who, when seen by him, was in labour with the feet of the child at the vulva. Labour proceeded apparently normally till the hips were born; the sacrum was anterior to the left. The delivery made no further progress in spite of energetic pressure on the fundus. Internal examination was difficult, as the thorax completely filled the pelvic cavity, but it was found that the thorax was completely twisted, so that the chin was anterior and pushed over the symphysis by the pressure of both arms lying closely applied behind the head. In spite of deep anaesthesia the uterus was so tightly contracted that it was only with great difficulty and after breaking an arm and dislocating the shoulder that the arms were brought down; even then there was much difficulty in rotating the head. The mechanism of the production of this condition seems obscure. The child died early in the labour, and the mother made an uneventful recovery.—E. H. L. O.

Heat in the Treatment of Carcinoma of the Uterus. By J. F. Percy, Galesburg, Illinois (*Surgery, Gynaecology, and Obstetrics*, January, 1916).—The author claims that a mass of cancer is destroyed when the temperature is raised to 113° F. (45° C.). He maintains that the correct application of heat in uterine cancer is not a cautery operation, for when this latter is used a carbon core is formed which inhibits the passage of the heat to the rest of the tissue. He also claims that a few cases are locally and clinically cured—one patient has had no recurrence after seven years, and in most cases subsequent operation is much facilitated. As regards technique, he opens the abdomen so as to control the application of the intra-uterine heat; this should be to such a degree that the surgeon with rubber-gloved hand can no longer hold the uterus, and the application is continued till all the structures that were fixed at the beginning of the application are freely movable. This cannot be done in every case, but can be done in the majority of cases.—E. H. L. O.

Books, Pamphlets, &c., Received.

- A Manual of Surgical Anæsthesia, by H. Bellamy Gardner, M.R.C.S., L.R.C.P.
 Lond. Second edition. London: Baillière, Tindall & Cox. 1916. (7s. 6d. net.)
- Sleeping Sickness, a Record of Four Years' War against it in the Island of Principe. Translated by J. A. Wyllie, F.R.C.S. London: Baillière, Tindall & Cox. 1916. (7s. 6d. net.)
- The City of Din: The Tirade against Noise, by Dan. M'Kenzie, M.D. London: Adlard & Son. 1916. (3s. 6d. net.)
- Physiology for Nurses, by W. B. Drummond, M.B., C.M., F.R.C.P. Edin. With 81 illustrations. London: Edward Arnold. (2s. 6d. net.)
- The Treatment of Acute Infectious Diseases, by Frank Sherman Meara, M.D., Ph.D. New York: The Macmillan Company. 1916. (15s. net.)
- Appleton's Medical Dictionary, edited by Smith Ely Jelliffe, A.M., M.D., Ph.D., assisted by Caroline Wormeley Latimer, M.D., A.M. London and New York: D. Appleton & Company. 1916. (15s. net.)
- Sleep and Sleeplessness, by H. Addington Bruce. Mind and Health Series. London: William Heinemann. (5s. net.)
- Human Motives, by James Jackson Putnam, M.D. Mind and Health Series. Edited by H. Addington Bruce. London: William Heinemann. (5s. net.)
- The Meaning of Dreams, by Isador H. Coriat, M.D. Mind and Health Series. Edited by H. Addington Bruce. London: William Heinemann. (5s. net.)
- A Text-Book of Operative Dentistry, by Various Authors. Edited by C. N. Johnson, M.A., L.D.S., D.D.S. Third edition, revised and enlarged. With 805 illustrations. London: William Heinemann (Rebman, Limited). (25s. net.)
- Diseases of the Nose and Throat, comprising Affections of the Trachea and (Esophagus: A Text-Book for Students and Practitioners, by Sir St. Clair Thomson, M.D., F.R.C.P. Lond., F.R.C.S. Eng. Second edition. With 22 plates and 337 figures in the text. London: Cassell & Co., Limited. 1916. (25s. net.)
- The Official Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Compiled from official sources. Thirty-second annual issue. London: Charles Griffin & Co., Limited. 1915. (7s. 6d. net.)
- Cleft Palate and Hare Lip, by Sir W. Arbuthnot Lane, Bart., M.S., F.R.C.S. Third edition. London: Adlard & Son. 1916. (10s.)
- Manual of Medical Jurisprudence, Toxicology, and Public Health, by W. G. Aitchison Robertson, M.D., D.Sc. Third edition. With 51 illustrations. London: A. & C. Black, Limited. 1916. (10s. 6d.)
- A Pocket Medical Dictionary, by George M. Gould, A.M., M.D. Seventh edition, revised. H. K. Lewis & Co., Limited. 1915. (5s. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FIVE WEEKS ENDED 25TH MARCH, 1916.**

	WEEK ENDING				
	Feb. 26.	March 4.	March 11.	March 18.	March 25.
Mean temperature, . . .	37·0°	36·1°	35·9°	39·2°	38·3°
Mean range of temperature between highest and lowest,	6·6°	7·2°	6·1°	7·1°	6·9°
Number of days on which rain fell,	4	4	3	5	6
Amount of rainfall, . ins.	0·24	0·24	0·20	0·31	0·90
Deaths (corrected), . . .	316	348	400	447	441
Death-rates,	15·1	16·6	19·1	21·4	21·1
Zymotic death-rates, . . .	0·6	0·6	0·8	0·9	0·8
Pulmonary death-rates, . .	2·2	2·7	2·7	3·0	3·3
DEATHS—					
Under 1 year,	45	47	67	61	73
60 years and upwards, . .	90	104	129	136	142
DEATHS FROM—					
Small-pox, . . . . .	...	...	...	...	...
Measles,	11	14	15	21	21
Scarlet fever,	9	2	5	8	6
Diphtheria,	1	4	4	6	4
Whooping-cough,	2	2	6	3	1
Enteric fever,	1	...	4	...	1
Cerebro-spinal fever, . . .	4	1	5	1	5
Diarrhoea (under 2 years of age),	3	3	2	6	4
Bronchitis, pneumonia, and pleurisy,	60	77	95	105	125
CASES REPORTED—					
Small-pox, . . . . .	...	...	...	...	...
Cerebro-spinal meningitis, .	6	7	8	8	10
Diphtheria and membranous croup,	38	31	30	29	26
Erysipelas,	13	24	32	12	32
Scarlet fever,	109	84	96	90	100
Typhus fever,	1	2	...	...	...
Enteric fever,	6	4	9	3	4
Phthisis,	41	62	65	49	55
Puerperal fever,	7	5	2	3	2
Measles,*	332	400	323	490	355

* Measles not notifiable.

THE
GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

THE PREVENTION AND TREATMENT OF SOME OBSCURE
CONDITIONS COMPLICATING CONVALESCENCE AFTER
GASTRO-ENTEROSTOMY.

By ALEX. MACLENNAN, M.B., C.M.,

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AMONG some of the undesirable sequences of gastro-enterostomy, which are perhaps more or less obscure, are the following:—

- I. Bilious regurgitation without vomiting.
- II. Bilious indigestion.
- III. Irregularity in the ejection of the stomach contents.
- IV. Reflex sensations.
- V. Pain.

I. *Bilious regurgitation*.—This is a very common complication of gastro-enterostomy, though while it usually causes vomiting, sometimes it does not. The origin of this very distressing condition, whether with or without vomiting, is

obscure. There can be no doubt that a faulty operation, such for instance as the anterior is generally conceded to be, will encourage bile to run into the stomach. Apart from this, in all probability bilious regurgitation is often due to atony of the stomach, accompanied by a disordered duodenal peristalsis, both primarily caused by the anæsthetic; but the condition has nothing whatever to do with either the technique of the operation or the position occupied by the patient after operation. If this be the main reason for the regurgitation, its cessation will coincide with recovery of the tonicity of the stomach. Such bilious regurgitation, with or without vomiting, is, however, usually a passing incident, and does not call for any special consideration. But the administration of morphia, necessary perhaps once, is, if continued, apt to increase the tendency. The more lasting regurgitation requires, on the contrary, much consideration, and on account of its tendency to continue, every precaution should be taken to prevent its establishment. The best technique, the most suitable post-operative position, and the fittest diet must be adopted to overcome this inveterate enemy. When it is accompanied by vomiting there is no obscurity about it. When there is no vomiting the condition can only be diagnosed by its symptoms and signs; yet, the former may be vague, though marked, while the latter may be absent altogether. The symptoms are referable to (1) distension; (2) withdrawal of fluid from the circulation; (3) action on the gastric mucous membrane.

1. The amount of bile excreted per hour may be much beyond what physiologists consider normal. The quantity excreted may exceed one pint per hour, and if all this pass into the stomach, distension will soon occur. To the secretion of the liver has to be added that from the stomach, pancreas, and duodenum. The patient complains of a feeling of fulness and unsupportable weight in the upper abdomen. On account of the distension, cardiac symptoms may develop. Thus the pulse may become irregular or feeble, while pain in the back of the head and shoulders becomes insufferable. Splashing may sometimes be readily elicited, while the distended stomach may be visible. The increase in the area of dulness may reveal an excessive filling of the stomach. Nausea may be present, hiccough and eructations may be continuous, the latter giving

relief. If the distension become extreme (five pints), pain may be occasioned, and especially is this so if the operation be of recent date. A less extreme degree of distension may give rise to pain while the patient is in the upright position.

2. Symptoms which may be accounted for by the extraction of fluid from the circulation are also present in proportion to the amount extracted, and the rapidity with which it is withdrawn from the blood. In the ordinary course of bilious secretion the water of the bile is quickly reabsorbed, and the loss to the circulation restored. If, however, the bile instead of passing down the intestines becomes accumulated in the stomach to the extent of two or three pints in a couple of hours, a condition of the circulation arises which is comparable to an acute hæmorrhage. The urine becomes scanty and has a high specific gravity. Faintness, lassitude, or prostration may be complained of. The cardiac symptoms dependent upon distension are aggravated by the reduction in the amount of the circulating fluid. Thirst is present; and after the bile is ejected from the stomach, as it must be if not vomited, there may be diarrhœa and colic, with a copious secretion of urine of a low specific gravity. The disturbance in the excretion and absorption of fluid, with irregularity in the amount of fluid in the circulation, leads, of course, to emaciation or considerable loss of weight. Most patients after gastro-enterostomy lose from six to nine pounds, and in all probability this is due as much to the disturbance in the fluid balance as to the semi-starvation diet.

3. It is true that the stomach can accommodate itself to the presence of bile; but at first even small quantities are resented, and this resentment produces very uncomfortable sensations. Where the bile stagnates and is not speedily ejected, it occasionally becomes increasingly obnoxious to the stomach. Impending sickness may add to the discomfort of the victim. It must be remembered that the bile regurgitated contains pancreatic secretion, and this fact has to be taken into consideration when the diet is prescribed. Certain articles of food, when retained in contact with bile, make a mixture which becomes intolerable to the stomach, and which gives rise to very pronounced symptoms. All cases are liable to this result, which may be called a bilious indigestion. That

this effect is due to chemical action is supported by the fact that the quantity found in the stomach may, on syphonage, be less than perhaps is usual, but this deficiency in quantity is more than made up by the increase in the acidity. Patients describe the sensation as a return of their old heartburn; bitter eructations may fire the gullet and throat. Before the operation soda bicarbonate was taken with relief; now it fails to effect its purpose. Soda, in the presence of bile, is not soothing to the mucous membrane, rather the reverse. The administration of baking soda during post-chloroform sickness is of questionable utility, unless it is intended as an emetic.

III. *Irregular ejection of the stomach contents.*—Irregular and uncontrolled evacuation after the installation of a new stoma is a disability which seemingly cannot be overcome, though various attempts have been and are being made with this object. Be the technique ever so perfect, the stomach will empty, whether quickly or slowly, somewhat erratically and altogether without the refinement exercised by the normal pylorus. The very exact mechanism involved in the evacuation of the stomach may be observed by the aid of the fluorescent screen. Small parcels of food are seen to be cut off at the pars pylorica and passed on through the pylorus, which then closes, forming a barrier against a flow in either direction. The bolus extruded through the pylorus is rapidly propelled along the duodenum, the food seemingly being hustled downwards as if there was not a moment to be lost in clearing a free way for the next extrusion from the stomach. In gastro-enterostomy the new stoma has no such discrimination; there is no pars pylorica to measure the amount to be evacuated. The capacity of the efferent jejunum has to serve as a sort of pars pylorica. In cases where the abdomen is reopened after the lapse of some time, it will be found that the jejunum immediately attached to the stomach is considerably expanded, and its walls are hypertrophied and congested. It is to such an adaptation that the spontaneous cessation of bilious regurgitation, after the lapse of several months, is probably due. Eventually, when such a hypertrophied sac is formed, it acts, to some extent at least, as a pars pylorica to the stomach. The quantity of material which

may then be ejected into the bowel will be determined by the capacity and the power to resist indefinite expansion of this section of the bowel. In certain cases, however, even though such a secondary sac has been formed, an extra powerful contraction of the stomach muscle may result in the extrusion of a monster bolus: the pouch may become choked, with the production of very disagreeable sensations. A similar effect may be produced by food becoming forced backwards into the afferent loop, even though the latter be the shortest possible (as in the "no-loop" operation). Till such a blocked bowel relieves itself, intense misery may be experienced. The constancy of the time required for this to happen (fifteen to thirty minutes)

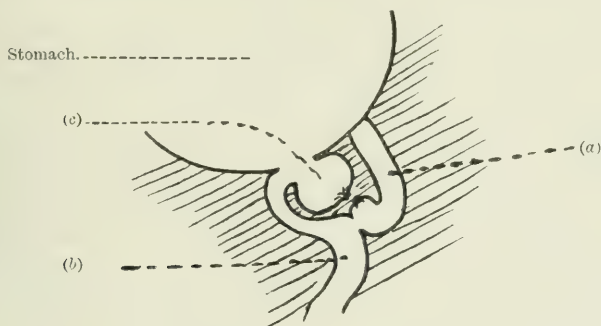


FIG. 1.

Gastro-enterostomy, anastomosis of afferent loop (a) to efferent loop (b), with severance of afferent loop beyond the anastomosis; resulting in blind end of afferent loop (c).

makes it extremely probable that this explanation of the symptoms is a true one. The startling suddenness of the onset and the abatement of the symptoms support the theory. The onset of the sensations during or shortly after a meal lends further support to this explanation. The seat of the misery is localised to the epigastrium rather higher than the umbilicus, and certainly higher than the situation of the pain associated with a peptic ulcer. It is therefore probable that this discomfort, when most acute, is produced by distension of the bowel. The subsidence of the symptoms may coincide with borborygmi, subjective and objective. Often secondary symptoms are observable such as are to be explained by reflex irritation

through the sympathetic with cardiac and vasomotor manifestations. A kink below the expanded section might explain the production of the initial blockage, and the symptoms will last till the stomach and bowel have forced the kink. Such ill-regulated evacuation of the stomach may be followed by enterospasm of the ileum, and may conclude with an attack of diarrhoea, though the capacious colon usually acts as a "silencer" to the torrent flowing down the small intestine.

Somewhat similar sensations may be complained of after lateral anastomosis of afferent and efferent loops, with severance of the afferent loop just proximal to the new stoma. The blind end of the afferent loop still attached to the stomach may become distended by food (Fig. 1, p. 317).

IV. *Obscure reflex symptoms.*—The irregular action of the new opening may well account for the frequent reflex symptoms. The feeling of trembling without visible tremor is a common so-called neurotic manifestation. The patient describes it as "a feeling of all coming to pieces." As a symptom this is not monopolised by gastro-enterostomy, but it is probably due, as has been suggested, to over-activity of the duodenum (writhing, so-called). It occurs late in relationship to the meal-time; indeed, it is often relieved by a meal. Like hunger-pain in duodenal ulcer, it corresponds to the passage of the remnants of the last meal which have become more or less acrid. Considerable mental depression may be associated with anomalies in the sweet working of a gastro-enterostomy. Such mental depression may progress into actual insanity. In one case met with mania developed, and persisted for over six weeks, but ended in recovery.

V. *Pain.*—Pain after gastro-enterostomy is a symptom which is not to be lightly considered, because it may be an indication of the development of a jejunal peptic ulcer. With bilious regurgitation pain is seldom present in the stomach. Occasionally the feeling of weight becomes so irksome that it may gradually partake of the nature of a pain. A pain described by patients as their "old pain" is usually associated with a former ulcer. Gastric or pyloric spasm may account for

some pains, but the pain of peptic ulcer is usually definite, and is similar to that in ulceration of the duodenum; that is, however, beyond the scope of this paper. The pain which accompanies over-distension of the stomach is the same for these various causes, while enterospasm and colic are identical with those occurring apart from gastro-enterostomy.

In the elucidation of these disappointing sequences of gastro-enterostomy the syphon tube will give much information, apart from its use in treatment. The examination of the stomach content after a test meal is also useful where adverse symptoms are inclined to drag on. Examination of the fæces to determine the activity of digestion for proteids and starch is sometimes also called for. The persistence of hyperchloridria after the operation is most uncommon in the writer's experience.

The prognosis in these more subjective conditions is favourable, pain being the exception. The presence of bile in the stomach is a safeguard, besides being, perhaps, a symptom which induces the patient to take more kindly to a restricted diet. These symptoms are the occasion of much distress, and, indeed, often render the patient's existence quite miserable. Treatment is demanded by them, but on account of the symptoms being so indefinite and so dissociated from signs, there is a tendency to consider the persons chronic neurasthenics. If this line be adopted there is little likelihood of any amelioration in their condition taking place.

If the bile be syphoned off, then on account of the disturbance in the fluid balance, as well as the loss of fluid, emaciation may become extreme. The urine tends to become highly concentrated, with the predisposition to calculus formation. In order to overcome the alkalinity of the bile, the stomach secretes more acid, and nutrition may suffer from this disturbance of the normal equipoise between the two. Whatever the causes, a condition of malnutrition may develop, which leaves the patient an easy prey to any intercurrent malady. Death may be caused by a persistent regurgitation, either early or late in the course of the trouble, but in such cases there is probably some error in operative technique.

Treatment.—This may be considered under two heads—preventive and curative.

By preventive treatment is meant the adoption of the best type of operation. From what we have seen technique is all important to avoid the mechanical conditions which predispose to or necessitate bilious regurgitation. The operation which I think most conforms to this proviso may now be described.

1. Having opened the abdomen, the lowest part of the stomach is noted. This may or may not correspond to the lowest part of the organ when filled, and when the upright position is assumed. It is intended to select the region just to the pyloric side of the lowest point. The operation is considered as one which should drain the stomach in such a way as to facilitate its rapid evacuation. When it is decided that a gastro-enterostomy is indicated in a case of congenital pyloric obstruction, the new opening should be as near the pylorus as feasible; for in infants the operation is not a drainage one altogether: and the fact that considerable alterations may take place during subsequent growth changes the conditions. With this exception the new stoma is made on the pyloric side of the lowest point of the great curvature. When the region near the pylorus is chosen for the anastomosis, the bowel must be applied to the stomach obliquely or even parallel with the long axis of the pars pylorica; this implies considerable displacement of the jejunal loop towards the right, but such displacement may not signify much in an infant, though it cannot be expected to be so well disposed of in an adult. In depicting the operation the view of the parts is invariably an anterior one, but the lateral view must be taken also into consideration.

2. The colon is raised so as to display the meso-colon; that area which is freest of vessels, yet contiguous to the selected spot on the stomach wall, is divided vertically for the necessary extent. Occasionally in this situation the meso-colon is more or less fused to the posterior wall of the stomach; in which case the opening in the stomach must be located further to the left. The fusion of the posterior wall of the stomach to the transverse meso-colon implies fixation of the stomach and the lowest point will therefore be more to the left. It may even be necessary to accept the meso-colon as the peritoneal

coat of the stomach, and in that case the operation may be completed without entering the small peritoneal sac at all. It may also be observed that the looping vessels of the meso-colon are placed some distance from the colon, so that a sufficiently low opening is prevented. If that be the case, the loop is divided between ligatures so as to expose the lowest part of the posterior wall of the stomach. In fitting the jejunum to the stomach all warping of the anatomy must be avoided by a little adjustment of the respective selected areas to be anastomosed.

3. The stomach is drawn through the slit in the meso-colon and clamped perpendicularly, occasionally with a slight inclination towards the pylorus, but never with the inclination towards the left. The omentum and the colon are then returned into the abdomen.

4. The bowel to be attached is emptied by digital pressure and clamped when flat. Clamps are used so as to prevent escape of blood during the suturing of the mucous membranes, for it is impossible to prevent intestinal contamination of such blood. While there is little danger from peritonitis resulting, adhesions may be set up which interfere subsequently with the working of the new opening. No attempt is made to get as close to the duodeno-jejunal junction as possible.

5. One layer of suture (silk) unites the two surfaces along a line which is sickle-shaped, and which is just off the free edge of the bowel (Fig. 2, p. 322). At the end of the line the thread is hitched under the last loop and caught lightly in a pair of pressure forceps, so applied that the serrations of the forceps cannot cut the silk.

6. The stomach is opened and a small lenticular-shaped section is removed from the entire thickness of the wall corresponding to the curvature in the Lembert line of suture. The same is done to the bowel; but on no consideration is the redundant mucous membrane of the latter excised in the slit part, however great is the temptation to do so. The object of leaving a redundancy of mucous membrane at the upper part of the stoma is to introduce some impediment to the entrance of bile; whilst the cutting out a section of stomach and bowel will lead to the formation of a gaping hole over the mouth of the efferent jejunum, and will facilitate the easy

evacuation of stomach contents (Fig. 3). The length of the opening should be carefully determined when the Lembert suture is applied. A long opening lengthens the duration of the operation. Too short an opening may account for the recurrence of stenosis with hyperchloridria. When the opening is made vertically a considerable part of the posterior wall of the stomach will be taken up, and the upper end of the new



FIG. 2.

To show line to be followed by Lembert suture on stomach when stitching it to jejunum.

stoma will be relatively high, giving an opportunity for bile to flow into the stomach. This is the one drawback to the plan of opening the stomach vertically. It is to be remembered that the stomach is more mobile and more elastic than the upper part of the jejunum, hence this area of union between bowel and posterior wall must be relatively proportioned. If the loop of the jejunum be made the shortest possible, there is

no chance of the junction descending with the stomach when the upright position is assumed. This will necessitate rolling of the stomach over the opening, which will then be placed at anything but the lowest part of the organ (Fig. 4, p. 324).

7. The operation is concluded by suturing the openings together by catgut, and then continuing the Lembert suture

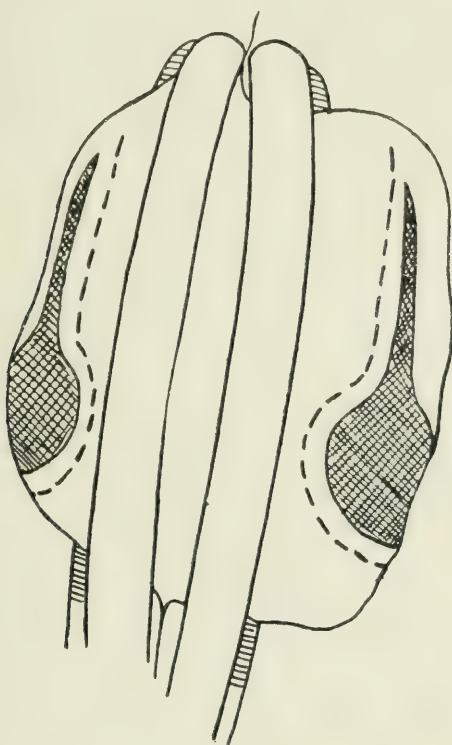


FIG. 3.

Dotted line where stomach and bowel are sutured together. Shaded racquet-shaped openings to be united by catgut.

which had been laid aside. As little of the girth of the bowel is taken up as possible. The junction is placed inside the small sac (Fig. 5, p. 325) by uniting the jejunum to the opening in the transverse meso-colon. Were it not for the extra safety thus gained in localising any possible leakage, it would be much better to attach the meso-colon to the stomach. Treitz' ligament

is not divided, as it only forms the upper part of a “ Λ ” shaped union between the jejunum and the transverse meso-colon. A set of three vessels going towards the junction is usually ligatured in the gastro-colic omentum, and the tendency for bleeding to occur is minimised.

Bleeding from a duodenal or pyloric ulcer forms the sole indication for the closure of the pylorus. Where hæmorrhage has occurred, all large vessels going towards the site of the ulcer are ligatured. Closure of the pylorus has no influence in preventing bilious regurgitation. Complicated anastomoses,

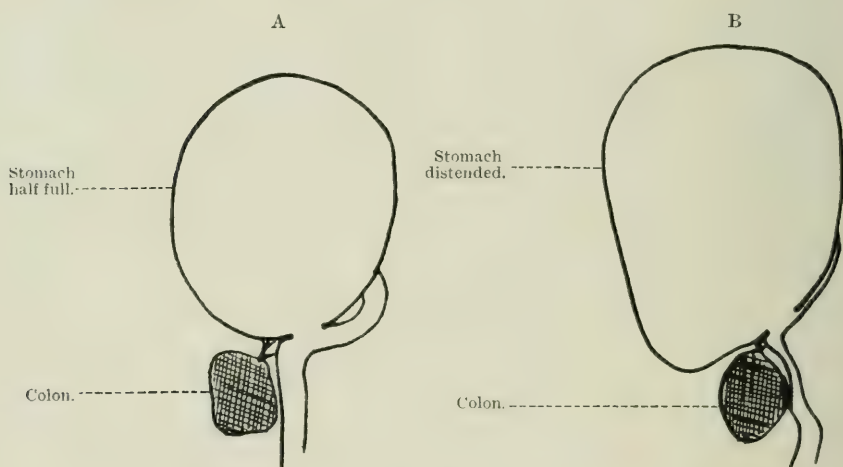


FIG. 4.

Lateral view to show effect of distension of stomach (B) in obliterating new stoma if “no loop” in jejunum be strictly adhered to; the posterior wall of stomach becomes anchored.

such as the Y, &c., are not called for; where such atony exists as to lead to constant bilious regurgitation, gastro-enterostomy was a mistake. After having seen to all the details in the operation for avoiding a tendency for bile to flow into the stomach, subsequent treatment will conduce towards the success of the operation.

The following *régime* after gastro-enterostomy is ordinarily adopted, and has given me the best results:—

Morphia is allowed during the first twenty-four hours, and withheld after that, unless in special circumstances. The

Fowler position is utilised ; rectal salines are given four-hourly, and if carefully administered, without the entrance of air bubbles, 15 to 20 ounces of saline may be retained. Soluble peptonoids, dessertspoonfuls of brandy, and glucose or raisin tea are generally included in the saline. During the first twelve hours nothing is allowed to be swallowed, though the mouth is frequently washed out with iced water.

During the second twelve hours sips of water acidulated with lemon juice are given every quarter of an hour.

During the next twenty-four hours the water is increased to half an ounce, while during the latter part of this time dessertspoonfuls of butter milk are given; and by way of a change

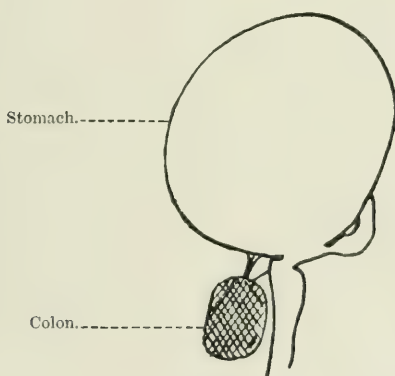


FIG. 5.

To show how under surface of the jejunum at new stoma is flattened against stomach if the stitches "take up" too much of bowel, or if three lines of sutures are used.

one ounce of lemon tea is allowed. Where butter milk is disliked, curds beaten into a fine pulp may be used as a substitute.

On the third day the diet consists of curds, butter milk, lemon tea, coffee without milk, and sugarless stewed apples.

On the fourth day calomel is administered (3 grains or thereby) in $\frac{1}{2}$ -grain doses at intervals of a quarter of an hour. This is followed by an enema of soap and water containing assafoetida, quinine, or turpentine. Occasionally such an enema is demanded sooner than the fourth day. The salines, now less

essential, may be stopped. Thrice daily feeds of scrambled egg, banana and cream, or Horlick's Malted Milk, or fish cream in addition to the sour milk, curds, apples, &c., may be instituted. Between these "meals," tea, water, coffee, beer, cider, or champagne may be given. Thereafter the diet is gradually varied and increased by the addition to it of bread and butter, puffed wheat and cream, boiled fish, pounded chicken, and such like.

The diet is increased in the second week to include fruits (either cooked or uncooked), chop, fowl, fish—especially the tasty smoked varieties. A sour wine may be partaken of advantageously with the meaty meal, but fresh milk after gastro-enterostomy must be avoided. Starchy foods require to be partaken of with great moderation, though, of course, some starch is essential. It should be given in such forms as banana, macaroni, "grape nuts," puffed wheat, or rice (boiled in water). Puddings containing both starch and milk are doubly obnoxious. The excessive restriction of bread may be avoided by giving malt bread, unless it be found that the sugar tolerance is too low.

During convalescence the diet may be increased experimentally, but should be mainly composed of fruits, cream, meats of all kinds, with the avoidance of those containing much fat. Mastication should be thorough, and if possible a short rest should be taken after meals, and during it smoking may be indulged in. To sum up, the diet should be acid, tasty, concentrated, should be eaten slowly, and be well masticated.

Treatment of the conditions referred to:—

1. *Bilious regurgitation without vomiting* requires treatment more than when the accumulated bile is vomited. The stomach must be freed from the excessive distension.

In cases with urgent symptoms the bile requires to be syphoned off. This measure should only be resorted to when other means fail, as it is difficult to make good the loss of fluid thereby entailed. After syphoning, the stomach should be washed out with warm water, and finally a few ounces containing a tablespoonful of vinegar should be left in. This is often sufficient to prevent further regurgitation. Thereafter means should be rigorously adopted to prevent recurrence. Rectal salines are invaluable in replacing the loss of fluid; the circulation

is kept vigorous, and restriction in the bulk of the ingesta is rendered possible. Small doses of opium or, better, of heroin in $\frac{1}{20}$ -grain doses may be given thrice daily to encourage gastric contraction, and to retard the secretion of bile. The value of strychnine is questionable, as it tends to accentuate spasm in the jejunum, without a corresponding increase in gastric tonicity.

The mechanism of bilious regurgitation is well called a vicious circle, for the presence of bile induces those conditions which encourage its continuance. In the presence of alkali the stomach relaxes, and the extra weight of the fluid increases the sagging of the organ, whose capacity for holding more bile is further enhanced. As the over-filled organ drops, it inclines to close its exit by obliterating the lumen of the jejunum. The position assumed by the patient then becomes of importance in so far as it relieves a downward pressure. By the mere resumption of a more horizontal posture the sensations due to increased weight are relieved, and the effect of the bulky stomach closing its own opening is counteracted, as similarly the assumption of the face position may immediately effect relief in acute dilatation of the stomach. The filling of the stomach with bile is thus largely due to atony, hence means must be taken to reduce this tendency. As posture influences evacuation of the stomach contents, so does movement. Exercise assists in the normal emptying of the stomach, and it may induce bile to leave the distended organ, though while the patient is confined to bed it is, of course, not available. Where the contractions of the stomach are absent and the organ is passive, shaking may, in the absence of exercise, undo kinks in the bowel and permit evacuation. Vibratory massage is a form of movement which is, par excellence, efficient in gaining the result. This application of massage is tolerated when the ordinary is not. Later on, driving in a shaky vehicle over rough roads is another expedient which achieves the same result; but either is not always possible. The application of a hot bag is, at least, comforting, and it assists in the return of gastric tonicity. The high frequency current undoubtedly causes contraction of the stomach. If this remedy be at hand it should not be neglected. Thus the treatment may be summed up in stimulation of the tonicity of the stomach.

The diet should be restricted and the food should be concentrated. Patients, the subjects of bilious regurgitation, will say that if they did not eat they would be quite comfortable; hence the obvious relationship between the regurgitation and the ingestion of food. The necessity for discovering which elements in the diet are active causes in the regurgitation is a consequence of such relationship. Foods which are known to stimulate the secretion of bile must be banned. Bread stuffs of all kinds should be much restricted or disallowed altogether. Milk is another sure producer of bilious regurgitation. Foods made of starch and milk, so often figuring in the invalid's menu, may be very suitable for such cases, but after gastro-enterostomy with regurgitation they should be avoided. Milk with bilious stomach contents becomes irritating to the mucous membrane. Milk when acidulated by the addition of lemon juice or in the form of butter milk, or soured by the Bulgarian bacillus, has an entirely different effect. The acidity neutralises the alkalinity of the bile, prevents pancreatic digestion, and at the same time aids the stomach muscle to recover its tone. Fatty foods do not, as a rule, agree with a bilious gastric juice. Boiled chicken, and, generally speaking, meat of all kinds are suitable diet in cases where regurgitation tends to occur. Acid fruits, especially when partaken of with the meaty meal, are most beneficial. They supply water in a form suitable to the conditions present. Dried fruits such as raisins, taken after a bilious regurgitation has developed, may induce the evacuation of the stomach. The same refers to raw apples or oranges and such like. Lemon squashes may be given between the dry meals. Fresh gooseberries may be allowed early in the convalescence; they supply water, salts, help to keep up gastric contractions, are diuretic and laxative.

In the acute stages of regurgitation, champagne, two to four ounces at a time, will speedily produce a most welcome amelioration. Its action is much the same as in sea-sickness, where also the depression is largely due to the presence of bile in the stomach. A peppermint liqueur may be an excellent remedy for an occasional bilious regurgitation. Beer and any of the sparkling wines have much the same affect as champagne. A cheap acid wine, such as the colonial burgundies,

is perhaps more within the reach of many patients than champagne. All the solid meals must be made as palatable and as piquant as possible; the more savoury the meal the better. So pat in discourse, "champagne and oysters" will be found to be equally practical. Exposure to cold should be prevented, as it is a sure cause of gastric atony. Finally, operative measures may be required for the relief of persistent regurgitation.

2. *Bilious indigestion*.—An intelligent patient soon discovers those articles of food which are safe. Soups, excess of alcohol, cooked fats, eggs, sweets (sugars), are articles which if taken by gastro-enterostomy patients who have bile habitually in the stomach, will quickly be found to disagree. Improper mastication will be more quickly penalised after gastro-enterostomy than in the normal stomach.

Instant relief may be obtained by syphonage of the stomach contents; though, in this, care must be taken, as occasionally much trouble arises from blockage of the tube by ill-masticated lumps of food. When removed, the contents will be found to consist principally of bile with only remnants of food, evil smelling and comparatively small in quantity. Lavage is not always necessary nor is it always advisable; it implies the removal of a certain amount of fluid which may be difficult to replace. Short of washing out the stomach, relief may be obtained by taking a large hot drink (bovril or such like with plenty of pepper) or a copious drink of brisk beer. These act, at least, as diluents of the irritating contents of the stomach. Exercise is important in assisting the motility of the stomach, while lengthening of the intervals between the meals allows the atonic organ to recover.

3. *Irregularity in evacuation*.—Imperfect mastication, too hot foods, too large meals, excitement, strenuous exercise shortly after a meal, all tend to produce anomalies in the evacuation of the stomach contents. Foods extremely acid or over-seasoned induce spasmodic contractions of the stomach. For instance, ginger partaken of after a meal may induce the onset of such symptoms as point to this cause for their production. Eating between meals and other irregularities in feeding should be avoided.

4. *Obscure reflex symptoms* require considerable investigation

before they can be treated; and when a theory as to their production has been suggested, it should be tested at once. The presence of constipation, and the effect of rapid filling out of the colon by a large amount of bile suddenly or quickly evacuated by the stomach, may occasion all sorts of reflex and obscure symptoms. The colon has been considered suspect in this connection, hence a diet to assist in the regulation of the bowels is called for; and in any case this is preferable to the administration of drugs. As a rule, however, constipation is not a feature after gastro-enterostomy. Coarse wheaten bread, fruits, prunes, and, if necessary, salines in the morning are indicated for this purpose. Drugs which induce copious evacuations of the bowel must not be prescribed, as they induce just such symptoms as are to be combated.

5. *Pain* is not a common trouble after gastro-enterostomy. As the operation has been performed for the removal of symptoms and to render the patient's life less precarious by allowing ulcers to heal, the presence of pain should be an indication that ulceration is still present, and from this point of view the case should have serious attention. A pain persisting after as before operation, where an active ulcer, gastric or duodenal, is known to be in existence, may receive merely expectant treatment, but the late recurrence or onset of pain as a new symptom may be regarded as more significant. The latter should be treated with the utmost care. The stools should be examined for occult blood, the diet should be strictly anti-ulcer, and, above all, rest should be insisted upon. An occasional attack of pain, more or less severe, is probably due to pyloric or gastric spasm, but persistent symptoms pointing to ulceration which resists treatment should lead to the recommendation of further operative interference. The possibility of a development of malignant disease should not, however, be forgotten.

SUBACUTE ANTERIOR POLIOMYELITIS.

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ALTHOUGH considerable doubt has been expressed as to the existence of subacute and chronic anterior poliomyelitis as separate and distinct from progressive muscular atrophy, the case which is shortly to be described in this paper appears to us to fall definitely into the former class.

The patient, an elderly woman, who came of good country stock, and had previously enjoyed fairly good health and worked hard as a nursemaid, presented a flaccid paralysis beginning in the peroneal group, extending rapidly to the upper extremities, and finally involving the muscles of respiration. The paralysis appeared first, and later atrophy of the affected muscles became marked. No fibrillary tremors were observed. Repeated and thorough examinations showed that there were no disturbances of sensation beyond occasional shooting pains. The sphincters were not affected. The reflexes were early abolished. An examination of the electrical reactions on admission showed reaction of degeneration fully developed in the affected muscles of the left leg and incomplete in the right leg. The Wassermann reaction was unfortunately not ascertained, but there was no history or suggestion of syphilis. The patient died from involvement of the diaphragm and intercostal muscles, the duration of the illness being probably less than a year.

Clinically, the diagnosis lay between peripheral neuritis and anterior poliomyelitis. The paralysis was quite in keeping with either diagnosis, but there was no disturbance of sensation,

nor tenderness of the nerve trunks. Later, the somewhat selective nature of the palsy, and the marked atrophy, pointed to a diagnosis of anterior poliomyelitis. As will be seen from the pathological report, this diagnosis was confirmed, and the nerves showed no pathological change.

Probably the case may be classified as one of subacute or chronic anterior poliomyelitis. The separation of these cases from progressive muscular atrophy is largely artificial, and is difficult to maintain on the strength of histological evidence. According to Oppenheim, such cases are rare, but undoubtedly exist. He states that they can be sharply differentiated from multiple neuritis in that the motor apparatus is exclusively involved. Batten and Holmes do not agree with Oppenheim's distinction of poliomyelitis chronica as a separate disease. Stanley Barnes has described cases of "toxic degeneration of the lower neurones," which resemble multiple neuritis, but are associated with marked atrophy of the hand muscles, and with but slight sensory symptoms. In some respects the condition resembles that of progressive muscular atrophy, but the etiology is different, and there is a constant tendency to improvement. In one case changes were found both in the peripheral nerves of the arms and in the nerve cells of the spinal anterior horns. The present case is quite different. There was no evident toxæmia, no sensory disturbances, and no changes in the nerves. Gowers states that cases are met with, although not frequently, that present every gradation to subacute poliomyelitis in one direction, and perhaps also to polyneuritis in another. Chronic and subacute poliomyelitis is, according to Harris, also a rare but undoubted sequel of syphilis. In Harris's three cases complete or partial Argyll-Robertson pupil was present in each. He states that the disease is a very late sequel, and that excess of albumen and lymphocytes in the cerebro-spinal fluid is absent in this form of spinal syphilis. It is greatly to be regretted that the blood was not examined for the Wassermann reaction in this case. However, the patient's personal and family histories were in no way suggestive of syphilis.

Thus, clinically, the case was unlike the usual form of progressive muscular atrophy in its mode of onset, in the distribution of the paralysis, in the fact that paralysis appeared

first, and was much more evident than atrophy, in the absence of fibrillary tremors, and in the rapid progress to a fatal issue.

From the pathological viewpoint the principal features of the case were the advanced degenerative changes in the ganglion cells of the grey matter of the spinal cord, and to a less degree in the medulla and pons, and the absence of tract degenerations and peripheral neuritis.

History of case.—The patient, a nursemaid, aged 48 years, was admitted to the Glasgow Royal Infirmary on 12th January, 1915, complaining of soreness and stiffness of the back, and partial loss of power of the legs and arms.

In April and May, 1914, the patient began to experience pain in the back on exertion, especially on going upstairs. After a complete rest, she became quite well. Weakness in the legs came on gradually. The left leg was worse than the right and dragged when she walked. About August, 1914, she felt when walking a sharp pain shooting down the back of the right leg. This continued till she rested. Occasionally she had a momentary sensation of numbness in the arms and hands. She had difficulty in putting up her hair. Otherwise she could use the arms and hands well, and could knit and sew. She has been unable to follow her employment since about August, 1914. But for an attack of bronchitis, for which she was treated in the Royal Infirmary, her previous health had been good. The family history presented nothing of importance.

Condition on admission.—The patient was a fairly tall woman of moderate muscular development. She lay comfortably in bed and made no complaint. The pupils were equal and reacted normally. The grip of both hands was fairly good, but the left was probably stronger than the right. There was considerable weakness of both legs, apparently mostly of the extensors. The left leg was much weaker than the right. There was but a moderate amount of flexion of the left knee-joint, and this was easily resisted. Dorsiflexion of the left foot was slight, and was accompanied by inversion, there being marked drop-foot. Much more power was present in the right leg, but here also there was some drop-foot and weakness of the extensors. There was no evident atrophy. The flexors and glutei appeared to be normal. There was some weakness

of the erector spinæ. Patient could not put up her hair owing to weakness of the deltoids. Otherwise the movements of the arms and shoulders were good. The knee-jerks, triceps-jerks, and supinator-jerks were present and equal. The ankle-jerks and plantar reflexes could not be elicited. The jaw-jerk and abdominal reflexes were absent. The sphincters acted normally. No sensory disturbance could be discovered. No tenderness or deformity of the spine was present. An x-ray photograph showed no abnormality.

Under treatment the patient appeared to improve for a short time, but then began to go steadily downhill. By 20th February there was distinctly less power in the legs and some atrophy was apparent. Sensation was perfect. She had lost weight considerably. Early in March very little power remained in the left leg, and the right was also very weak. There was much weakness of the back. No sensory disturbance could be detected beyond occasional pains in the back of the right leg. By the end of March weakness in the arms was more marked.

Note on 9th April.—Both arms were weak and the muscles were small and flabby. Atrophy of the thenar and hypothenar muscles was distinct. There were no fibrillary tremors. The right grip was slightly greater than the left, but both were weak. Weakness was most marked in the extensors, and the left wrist dropped slightly. There was marked weakness and atrophy of the deltoids, but no definite weakness of the shoulder girdle muscles. The triceps tendon and supinator jerks were very slight, if present at all, and were equal on both sides. The right knee-jerk was slight but distinct. The right plantar reflex was now present and flexor. No reflexes could be elicited on the left. The diaphragm was acting. There was marked weakness of the back, and patient could not sit up. There was no sensory disturbance beyond occasional pains in the right leg. The pupils were equal and responded normally. There was no disturbance of the general health. The tongue was clean and moist, and the appetite and bowels satisfactory.

By 26th April the patient's condition had rapidly deteriorated. The condition of the legs was much the same, but the arms were weaker. Atrophy of the thenar and hypothenar muscles

and of the deltoid, supraspinati, and infraspinati was marked. On the evening of the 25th she complained of shortness of breath, and had to be propped up in bed. Next morning she was rather better. Nothing could be discovered in the chest, the diaphragm was acting, and the larynx appeared to be normal. On 28th April the diaphragm was not in full action, and on the 29th it was inactive. There was no laryngeal or palatal paralysis. On 29th April the intercostal muscles were involved, and death ensued rapidly.

Summary of report of post-mortem examination.—There was marked atrophy of the muscles, which was most evident in the thenar eminences and the calves of the legs. The left leg was more atrophied than the right. The thoracic and abdominal viscera showed no deviation from the normal, except some old fibrous adhesions on the left lung and about the appendix, and some small myomata in the uterus.

Nervous system.—The pia arachnoid was very highly cedematous, and a large amount of fluid welled up from the spinal canal; it was perfectly clear. There were a few small superficial hæmorrhages on the surface of the cerebrum, probably terminal; otherwise it showed no sign of disease. The cranial nerve roots, the spinal cord, and spinal nerve roots appeared normal. All the peripheral nerves which were examined stripped cleanly from the adipose tissue, showing no sign of neuritis. Portions of the brain, spinal cord, spinal ganglia, and the vagus, phrenic, great sciatic, anterior tibial, and musculo-spiral nerves, from both sides, were preserved in formalin for microscopic examination.

Microscopic examination.—The material was obtained within five hours of the death of the patient.

Celloidin sections were prepared from tissues treated by Marchi's method, and paraffin sections were stained with hæmalum and eosin and with toluidin blue for Nissl's bodies.

Spinal cord.—There was no reaction by Marchi's method. Paraffin sections of the dorsal and cervical regions were examined. As the sections contained a few cells which appeared to have been absolutely healthy, a standard by which the histological preservation of the cord could be estimated was

obtainable. All degrees of changes were seen in the cells of the grey matter from a slight chromatolysis, with or without pigmentation, down to a condition of absolute lysis with atrophy of the processes and eccentricity or extrusion of the nucleus. In some instances there was necrosis of the cells, merely a diffusely stained shadow of the cell remaining. As a rule, there was no increase in the number of satellite cells around the nerve cells. The cells of the anterior horn were more affected than those of the posterior horn or Clarke's column. There was none of the cellular infiltration about the vessels which is seen in acute anterior poliomyelitis. The horns of grey matter showed no gross atrophy.

In the medulla the ganglion cells presented all degrees of change. The best preserved were those of the groups situated near the opening out central canal—probably those of the nucleus of the twelfth nerve. All the other groups showed much variation in the condition of the cells; but, on the whole, there was considerably less change than in the cells of the cord. The cells of the olivary nucleus showed very marked chromatolysis and pigmentation and satellite cells not uncommonly, but the advanced changes seen in the cord were not made out. The condition of the pons was similar to that of the medulla.

Sections of three of the *posterior root ganglia* were examined. In two the chromatolysis was not very marked, the cells showing abundant granules but usually some central lysis. In the third the lysis was distinctly more marked, and there was more brown pigment in the cells. There was not, however, complete lysis such as was seen in the anterior horns of the spinal cord.

Optic thalamus.—The cells in this generally showed chromatolysis, many of them to an advanced degree, and many of them were also accompanied by round cells in some excess, apparently set into the body of the ganglion cell. Processes were difficult to trace. Necrosis was not made out.

Cerebrum.—The sections were prepared from the motor cortex. There was chromatolysis in most cells. The Nissl bodies in some seemed to have been to a great extent discharged. In most the staining was fairly deep but it was diffuse, the

distinctness of the bodies being lost. A few showed fairly good Nissl body staining, but a strictly normal cell for a standard could not be found. There were satellite cells about a certain number of the nerve cells, and some of these were imbedded in the bodies of the cells. The processes generally seemed to be well preserved. The complete lysis and the other graver changes seen in the spinal cord were, however, entirely absent. The changes may have been recent—a condition which would correspond to the good mental condition up to the end.

Altogether the brain showed much less pathological change than the spinal cord.

Nerves.—There was much adipose tissue in the nerves. V. Gieson's stain showed *possibly* a slight excess of connective tissue among the nerve fibres and slight thickening of the sheaths of the nerve cords. The fibres themselves looked healthy. Marchi's method showed no degeneration, the nerve fibres appearing perfectly healthy.

Summary.—1. The patient, a woman of 48 years, exhibited a flaccid paralysis beginning in the peroneal group of muscles, rapidly extending to the upper extremities, and finally involving the muscles of respiration.

2. The paralysis preceded the atrophy. Reaction of degeneration was present, but there were no fibrillary tremors.

3. There was no disturbance of sensation beyond occasional shooting pains in the right leg.

4. The duration of the illness was less than one year.

5. The diagnosis was indicated by the somewhat selective nature of the palsy, by the distinct atrophy which followed, and by the complete absence of sensory disturbance.

Pathological summary.—There was no macroscopic evidence of disease of the nervous system except oedema of the pia arachnoid and an excess of cerebro-spinal fluid. Microscopic examination revealed degenerative changes in the cells of the grey matter, which were very advanced in the spinal cord, less advanced in the medulla and pons, and slight in the basal ganglia and brain. In the cord many cells were barely recognisable, and probably others had disappeared altogether.

There were some satellite cells in places, but no inflammatory infiltration such as is seen in acute anterior poliomyelitis. Also there was no peripheral neuritis and no degeneration of tracts.

Conclusion. — Clinically the case could be definitely distinguished from progressive muscular atrophy and peripheral neuritis. Pathologically there was degeneration of the lower motor neurones. The case probably should be regarded as a sub-acute poliomyelitis.

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JOHN GIBSON FLEMING

1809—1879

JOHN GIBSON FLEMING, M.D., F.R.S.E., SURGEON AND
MANAGER, GLASGOW ROYAL INFIRMARY.

BY J. WALLACE ANDERSON, M.D.

I HAVE been called upon to tell the story of another of these grand old men of the Glasgow Royal Infirmary. There is one who stands out pre-eminently in my memory of whom I would have spoken before this had it not been that I could hardly have done so without speaking of myself. That difficulty still exists, but I shall avoid it as far as possible. He was not one of my teachers; I was just one of many, although only two or three were known to me personally, whom he took by the hand when our *Alma Mater* had dismissed us with her advice and blessing.

In those bygone days there was a current saying amongst us, that for her graduates Edinburgh would stick at nothing while Glasgow would do nothing. If this was so, then it was left to our old friend to prove the truth of the adage that "the exception makes good the rule." If Andrew Buchanan was, as I have said in a former paper, like a father to his students, the relationship was one mainly of sentiment, whereas with Fleming it took the more practical and therefore the more vital form of giving them now and again a "case."

I see him yet; his figure portly but well borne. His face, rather stern in repose and severe enough in rebuke, but lit up with kindly interest in the presence of a friend, but most of all with sympathy in the company of the young. If one could only tell the story of him as one would like; how he would betimes stop suddenly on his way as old men do, perhaps to recover a little breath as they await your approach, perhaps to ponder over some simple touch of nature which a younger eye would miss. So it was once in a neighbouring village on a Sabbath morning on his way to church when a child of about three years of age crossed the footpath. "Dod, there's a laddie in his father's waistcoat," the said waistcoat projecting well in

front of the boy and reaching down to his heels. How long Fleming would have stood had the church bells not been ringing I do not know, but he talked of the cottars' children all the way.

John Gibson Fleming was born in Glasgow, on 2nd December, 1809, and was the son of William Fleming, a timber merchant of the city. He was proud of being a Glasgow man. The names of his forbears frequently appear in the civic records; but he could go further afield than that, and was wont to tell how he was one of the "Flemings from Flanders" who came across the water in the middle of the seventeenth century. His was a prominent name in Glasgow one hundred years later when his grandfather was the hero of the famous "Saw Mill case," as it was termed. It was a protracted case, and I can only give the summary of it which appears as an inset on the map of a part of the city specially prepared for the trial.

"A Plan of Part of y^e City of Glasgow and Course of the Burn Molendinar leading to the Saw Mill erected by William Fleming, Merch^t in Glasgow, in 1750 and 1751 and set agoeing in 1752. Demolished by the Magistrates of Glasgow on the 23rd June 1764, for which he then commenced a process against the said Magistrates before the Court of Session and in consequence of a final Judgment given on the 9th July 1768 the Magistrates paid the pursuer on the 18th November following £610 1s. 4d. Sterling and were also obliged to relieve him of the expense of extracting the Decreet."

It was a complete victory for the sturdy timber merchant, and one can understand how the trial was for many a day the talk of the town.

Some fifty years later the young Fleming with whom we have to do, like most city boys of that time, was sent to the Glasgow Grammar School, and would be one of the "five to six hundred scholars" who in 1820 marched in that imposing procession of authority and learning, including as it did Town Councillors and University Professors, to lay the foundation stone of the new High School on the site now occupied by the Technical College.

In the choice of his profession he was doubtless influenced by his relationship to the well-known Dr. Balmanno, a cousin of his father, and himself a physician of the Royal Infirmary for

many years from 1804. At the University Fleming attended the classes of Thomas Thomson, Jeffrey Hooker, and others; and also the chemical class of the great Thomas Graham, who was for one year (1830) lecturer in the Portland Street School of Medicine. In addition to being a resident in the Royal Infirmary on both the surgical and medical sides of the house, he availed himself of a very valuable field of study long since out of date, namely, the practice of a Parochial Medical Officer. In our notice of Professor Andrew Buchanan we referred to a half-dozen or so Parochial Medical Districts into which the city was divided in the early part of last century, one of which districts Dr. Buchanan had himself for a time. But these officials had frequently pupils who accompanied them on their round of visits, and young Fleming was one of these. "A student," he said, "was in the habit of attaching himself to one or other of these officers, some of whom had in this way a considerable following of clinical pupils. From personal experience, both as a pupil and as a parochial surgeon who had pupils, I can testify that much useful information was imparted in this way. In the department of the diseases of children, with which every student should endeavour to familiarise himself before commencing practice, he would here find opportunities for study which he would have difficulty in obtaining elsewhere."¹ As a matter of fact he was a pupil of Dr. William Young, a well-known general practitioner who at different times held the offices of physician and surgeon in the Royal Infirmary, and for whom Fleming had a most kindly regard.

In 1830 Fleming took his degree of M.D. of the University of Glasgow, and in the following winter he crossed over to Paris, remaining there till at least the autumn of 1831. That was not such an uncommon thing as we of to-day are apt to imagine. Many young Scottish graduates and licentiates in medicine of quite moderate means and aspirations proceeded to the French capital for further study, and we may expect in view of passing events that the custom will be revived at no distant date.

In 1833 he took up house for himself, having "rooms" at 107 Buchanan Street and residing at 121 West Regent Street. This was the method pursued by the practitioners of that day

who could afford to wait, the keeping of drugs at the rooms being restricted to a few simple remedies. We can picture him in those early days, industrious, no doubt, in laying a solid foundation for the better class practice to which he could look forward, but neither overburdened with work nor overborne with care. He was one of the stewards at the great Peel Banquet in Glasgow in 1837, at a time when most of his fellow graduates were occupying themselves with the more absorbing rôle of waiting for something to turn up. By 1844 he had "consulting rooms" at 52 West Nile Street, but only for a short period. He resided for a few years at 190 West George Street, and in 1856 he removed to 155 Bath Street, where he lived till the day of his death.

To go back: in 1833 he became a member of the Faculty of Physicians and Surgeons, his probationary essay being "The Pathology and Treatment of Ramollissement of the Brain." This essay was founded on cases he had seen in Glasgow and Paris, or studied in both home and foreign medical literature. By his grasp of affairs and a certain doggedness of purpose he quickly made his presence felt in the deliberations of the Faculty, and throughout his long membership he devoted himself unceasingly to the interests of that body. It was mainly through his exertions that in 1850 certain essential changes were at last made in the constitution of the Faculty, such as the discontinuance of the Widows' Fund which had for a long time imposed a heavy burden upon the Faculty's resources and general prosperity. In 1862 he was appointed to represent that body in the General Medical Council, and here again his personality and sound judgment soon gave him an established position there, a position of supremacy which we imagine none of his successors will challenge.

In 1865 he was elected President of the Faculty, and almost immediately thereafter set himself to the task of reorganising the system of examination for the licence. The ancient method of bringing the candidate into a room where some half-a-dozen examiners would have a shot at him, in or out of turn, was still in vogue. In that respect we were certainly behind the times. It was the new president who instituted the modern system of having special examiners for the various subjects, two of whom should always be present at the examination of a candidate, one

as examiner and one as assessor alternately. To these conspicuous qualities to which we have just referred, Dr. Fleming owed his re-election as President for the unprecedented period of five years, "a spontaneous tribute to his devotion to the interests of the Corporation, and this all the more that he was not given to courting popularity, and held the reins of office with a firm hand."² But the best thing he ever did for the Faculty was, to quote his own words, his "discovery of Duncan." Everyone connected with the medical profession in Glasgow, and most people who have sought information on local medical questions, know who Duncan is. I can testify to Dr. Fleming's warm friendship for the Faculty's Secretary and Librarian, Dr. Alexander Duncan, and to the complete satisfaction with which he looked back on his finding of Duncan—complete because his heart went out to the young schoolmaster whom he had rescued from an environment in our city none too good for him though reputable enough; complete because time had shown, as it has never ceased to show, that he had hit upon the very man for the place.

We shall now speak of Fleming in his relation to the Royal Infirmary. First of all as a surgeon. He was appointed in 1846. At that time the office was held for a period of four years followed by one year of ineligibility. Dr. Fleming's four years were followed by three out of office on account of there being no vacancy; but in 1853 he was appointed to a further and final four years of duty. There is not much to be said of him as a surgeon. His most ardent admirer could not say he was a brilliant operator, or that he was daring, inventive, or resourceful. There is no operation or splint or needle called after his name. He just did the work which lay to his hand each morning carefully and conscientiously, and then came away. If evidence of this were needed we have it in the few surgical papers he has written. He had as one of his colleagues the late Dr. William Lyon, an old and intimate friend, and between the two a little good-tempered banter frequently passed. One morning a man was brought into Fleming's ward with some coin of the realm stuck in his throat. Fortunately there was no immediate danger to the patient, but it was a ticklish business; the coin would neither go up nor down. And there was Fleming flushed and flustering over the obstinate

thing. But his sense of humour saved the situation, for him at least, and for the patient, too, let us hope. Throwing the forceps down upon the table he said, "Send for Dr. Lyon. If there is anyone can get a half-crown out of a poor man it is Lyon."

It is as a member of the Board of Management that Dr. Fleming will be best remembered in the annals of the Glasgow Royal Infirmary. He became a manager in 1850, and continued to act in that capacity with occasional intervals, as when he became surgeon for the second time, until his death. The same practical qualities which established his position in our Faculty quickly brought him to the front in his new office. We very soon find him taking part in the long-disputed question of the duration of the tenure of office of the medical and surgical staff. From the very institution of the Infirmary all appointments had been annual, and for many years the favoured few went out and in indefinitely, but always out for a certain time, however great their influence with the Board might be. As early as 1807 the managers passed resolutions in favour of greatly extending the period of unbroken office, but the appointments continued to be made in a kind of haphazard way till 1836, when the term of office of both physicians and surgeons was fixed at four years.

In 1857 we find Dr. Fleming associated with Professors Allen Thomson, Macfarlane, and Pagan in recommending "that there should be two Clinical Physicians and two Clinical Surgeons; that they should be appointed for ten years, and be eligible for re-election at the expiry of their term of office as often as the Directors may think fit;" and further, "that there should be two ordinary Physicians and two ordinary Surgeons, who should attend to the patients not under the care of the Clinical Physicians and Surgeons. That they should hold their appointments for six years, and be eligible for re-election at the expiry of this term of office as often as the Directors may see fit." Obviously, the introduction of special clinical teachers into the inquiry complicated the situation, and any material alteration in the term of office was postponed for many years. The principal difficulty was the year of ineligibility which might be indefinitely extended if no vacancy occurred.

But things could not remain as they were. With the

advance of the nineteenth century the scientific study of disease developed rapidly, first of all in France and then in our own country; and it was to the hospital that the enquirers turned for the opportunity of prosecuting their research. And so a longer term of office gradually became more common as men came forward who were ready to proceed on scientific lines. In bringing about these changes Dr. Fleming took throughout a leading part; and amidst considerable opposition he generally carried his point. He did not, however, have it all his own way. He did not carry his proposal to change the hour of visit to two o'clock, an hour that he thought would be more to the advantage of the patients, who would in that way have their morning's rest undisturbed. It had little weight with him that the afternoon hour would be less convenient to the visiting staff, for he held that it was incumbent upon every one who was privileged to hold such an office to subordinate to it his private practice and all other interests. He rather surprised me once by telling me so in very plain language.

While doing what he could to further the clinical study of disease, Dr. Fleming never forgot that the primary object of the hospital was the relief of suffering. It was easy to show, however, that a longer and more scientific study of disease on the part of the medical staff only made them the more efficient, and was therefore in the interests not only of the patients but of the whole community.

But a crisis in the history of the Infirmary was approaching at the very time (1870) that Dr. Fleming, in the form of a letter, was bringing his views finally before the managers. The University was about to be transferred from its ancient home in the High Street to a new abode on Gilmorehill, and very soon the medical professors and students would follow suit, and go to find pastures more convenient by the banks of the Kelvin.

Once more, and for the last time, as it proved, Dr. Fleming became the guiding spirit in the old Glasgow Royal Infirmary. He showed how, if no immediate action were taken, the hospital would suffer by the transference both in prestige and in usefulness, and how a large field of medical research would be left neglected. The professorial emigration took place in the autumn of 1874, and the Royal Infirmary was left severely

alone by its quondam friends. And so in 1875, on Dr. Fleming's suggestion, the managers applied for and obtained a supplementary charter, which, among other things, included "Powers to afford facilities and accommodation for the teaching of Medicine and Surgery, and the Collateral Sciences, usually comprehended in a medical education."

At their first meeting in 1876, the managers appointed a committee of their number to consider and report what steps they would recommend should be taken in virtue of the powers thus acquired; and after full and careful consideration the committee reported, *inter alia*, as follows:—

"1. That to utilise, to the full extent, the unsurpassed advantages which the Royal Infirmary affords for instruction in the Medical Sciences, would conduce to the best interests of the Infirmary as a great Public Charity.

"2. That the fullest realisation of these advantages can be secured only by the institution of a School of Medicine, in connection with the Royal Infirmary.

"3. That though the advantages which the Infirmary affords are principally connected with the practical branches of medicine, the institution of classes for instruction on these subjects, apart from what are known as the fundamental branches of Medical Science, would not have a fair claim for complete success.

"4. That the School should therefore provide instruction in all the subjects necessary for qualifying students of medicine for admission to the examinations for a Licence to practice, as in the case of the English Metropolitan and some of the Provincial Hospitals."

The report was adopted by the managers, lecturers were appointed, and the Royal Infirmary Medical School was formally opened in November, 1876. To pursue the matter further would lead us away from our present subject. Dr. Fleming was not spared to see the completion of the new school buildings, which took place in 1882.

Fleming wrote little. His few surgical papers are chiefly records of interesting cases; but his thesis on ramollissement, or, as I should prefer to say, softening of the brain, already referred to, shows careful independent study as well as a thorough acquaintance with the views of the leading pathologists

of that day. His most important work was published in 1862—*Medical Statistics of Life Assurance, being an Inquiry into the Causes of Death among the Members of the Scottish Amicable Life Assurance Society, from 1826 till 1860*. On this subject he could speak with the authority of a Christison or a Begbie, having had an experience as a Medical Examiner of many years, first for the Scottish Provident Society and latterly for the Scottish Amicable. In making an analysis of the diseases which had proved fatal to the assured as compared with the general mortality, Fleming did not adopt a system of his own as others had done, but based his on the classification of disease followed by the Registrar-General, and understood therefore by everyone. The work was done with all Fleming's conscientious thoroughness, but it and all such studies have long since been put out of date by the complete change which has taken place in our knowledge of disease.

There is not much more that one can say of Dr. Fleming as a medical man. He had for many years a large practice amongst the best known of Glasgow's citizens, and latterly he was frequently called in consultation. "He was a warm friend and trusted counsellor of his patients," and "although holding strongly to his own views in matters of controversy he was eminently fair and judicial, and his colleagues invariably listened to him with respect."³ These are the words of an anonymous writer, but quite identified as a friend of his, who knew him well. At the same time I remember it was said of him that medical men who were his contemporaries thought him blunt and rather overbearing, but it was always added that younger men found him considerate and kind. He had a presence certainly that brooked no liberty, and when he spoke one felt that he spoke with authority. But when he addressed the students of the Royal Infirmary at the inauguration of the School of Medicine it was in this wise:—"My whole professional life has been intimately associated with this Infirmary. I look back with many fond recollections to the days I spent within its walls as a student, a dresser, a medical and surgical assistant, and my memory still often recurs to the very cases I then saw, to the valuable practical instruction I then received, and to the warm friendships which were then commenced—friendships which have added much to the joys and helped to soften the

sorrows of life, and not one of which has ever been broken except by death." This is Fleming in the company of the young.

The two almost opposite traits in his character are well illustrated by a simple incident which occurred at a dinner he gave to a few of us who had lately qualified. He had been for some years an Examiner in Surgery at the University, and we were talking about the recent examinations we had passed when several of us informed him that we were all afraid of him as an examiner. I shall never forget the play of conflicting emotions which passed over his face. He was pleased at the wholesome respect for him which our apprehensions indicated, it satisfied his sense of authority: and then contending with this was the thought that we had ever dreamt that he could have been hard on us or in any way unkind. As if he were now saying, "It was all put on. Did you ever doubt my sympathy with you or my wish to let you all through if in honour I could do so?" And then to change the subject he told us of a remarkable dog he had seen lately. When his master proposed the toast of Dizzy it danced about and responded as only a dog can, but when Gladstone's health was proposed it hung down its head like a whipped cur. "Wasn't it wonderful; most astonishing." And through it all one could see that he was delighted at the dog holding the same political views as himself. The trick was new then, and he had to tell us how it all depended on the hand with which the dog's master raised his glass in proposing the toast.

As to his manner of living, I only venture to speak of it because to my mind it was wholly admirable. It was based on a natural regard for the fitness of things, a regard for the proprieties. With Fleming it was a first principle that everything be done decently and in order. But he was no ascetic. He believed that the good things of this life were meant to be used; and with him the abuse of them was simply out of the question. He lived well and was a good judge of wine. When a glass of port was put before him by some old patient who was a connoisseur like himself, he would hold up the glass admiringly and say, "There is no gout there." It was a compliment to the port; not a matter of debate. But he was tolerant of those who held a different opinion on such subjects,

and tolerant of their practice also as long as it was not brought into direct conflict with his own. I think his temper had been a little ruffled by an experience of this kind a few evenings before, when he said to me one day that any man has a perfect right to invite you to dinner if he choose, but not to a teetotal dinner without informing you of the fact beforehand.

So much for his manner of living. What of his life? I could see into it a little way, and what I saw was only good and guileless. A medical man of his age and experience must have seen much of the very bad in human life, but he came out of it scatheless. I have seen him puzzled over some of our conventionalities. He did not like them; to him they were at least indecorous. If it could be said of anyone at three score years and ten that he had the heart of a child, it could be said of Fleming.

We need not stumble over these contrasts in his character to which we have more than once referred. We find them in the strongest natures if we only get deep enough, and in Fleming they lay almost on the surface. When I think of my old friend, of what he was at heart, I always think of the "unspotted from the world."

He looked forward to a few years of retirement in the country, for there was much of the old Scottish laird about him; but it was not to be. After an attack of enteric fever, in his house in Bath Street, he passed away on 2nd October, 1879. In his memory a stained glass window, representing St. Luke, was placed by his sons some years ago in the entrance hall of the old House; it is now in the corridor of the Infirmary Chapel.

I am indebted to my friend, Dr. Adams, Glasgow, for the photograph of Fleming here reproduced.

REFERENCES.

- ¹ Inaugural Address: Glasgow Royal Infirmary School of Medicine, 1876, p. 20.
- ² Obituary Notice, *Glasgow Medical Journal*, 1879, vol. ii, p. 370.
- ³ *Memoirs and Portraits of One Hundred Glasgow Men*, vol. i, p. 136.

Obituary.

ON SERVICE.

CAPTAIN GEORGE FLETT BARR, M.B., CH.B.GLASG.,
ROYAL ARMY MEDICAL CORPS.

WE regret to announce the death of Captain G. F. Barr, which occurred in France on 23rd March. The eldest son of the late Mr. James Barr, of Paisley, Captain Barr, who was 25 years of age, studied medicine at the University of Glasgow, where he took the degrees of M.B., Ch.B. in 1914. After graduation he became house surgeon in Paisley Infirmary, and he joined the Army about a year ago, being attached to the 42nd Field Ambulance.

LIEUTENANT JOHN JAMES MACKINTOSH, M.B., CH.B.GLASG.,
ROYAL ARMY MEDICAL CORPS.

WE regret to announce that intimation was received in this country about 10th April that Lieutenant J. J. Mackintosh had died of gastritis in Egypt. He was the eldest son of the late Mr. Donald Mackintosh, Saradale, Stornoway, and was 31 years of age. He was educated at Inverness Royal Academy, and came for the study of medicine to Glasgow University, where he took the degrees of M.B., Ch.B. in 1908. At the outbreak of war he was in practice in Johannesburg, and volunteered for active service in South-West Africa, where he went through the whole campaign. Returning at its close to this country, he was granted a commission in the Royal Army Medical Corps. A younger brother of Lieutenant Mackintosh is on active service with the Lovat Scouts.

WILLIAM GRANT MACPHERSON, M.B., C.M.Ed.,
BOTHWELL.

WE regret to announce the death of Mr. W. G. Macpherson, which took place at his house in Bothwell on 31st March. A student of Edinburgh University, where he took the degrees of M.B., C.M. in 1888, Mr. Macpherson speedily acquired for himself a position of influence in Bothwell, where he practised in partnership with the late Dr. Bruce Goff. The esteem felt for him by his colleagues and by the community was shown in his appointment to the chairmanship of the Local Medical and Panel Committee for the County of Lanark. His death from pneumonia will be widely regretted among the large circle by whom he was held in affection and respect.

JAMES ANDERSON, M.B.GLASG., L.R.C.S.ED.,
POULTON-LE-FYLDE.

WE regret to announce the death of Mr. James Anderson, which occurred on 9th April at Poulton-le-Fylde, Lancashire. Mr. Anderson was a student of Glasgow University, where he took the degree of M.B. in 1877. In the same year he took the qualification of L.R.C.S.Ed., and after his graduation he became resident surgeon at Paisley Royal Infirmary. He ultimately settled in practice in Poulton-le-Fylde, where he held the offices of medical officer of health for the town and medical officer for the Poulton district of Fylde Union.

TOM BATES, L.R.C.P.&S.E., M.R.C.S.,
WORCESTER.

WE regret to announce the death of Mr. Tom Bates, of Worcester, which occurred on the 3rd ult. There are still amongst us some who remember Bates as one of the best Andersonian students exactly fifty years ago. At that time he was fever assistant under Dr. Perry in the Royal Infirmary. He was a

man of marked ability and as modest and unassuming as he was clever. He would never speak of himself, but in answer to our enquiry a year or two ago he remarked that he became a resident in the house while still unqualified, taking the double licence at Edinburgh in April, 1866, and that during his residency Dr. Perry himself, happily still with us, was struck down with typhus fever. In September of the same year he went to Paris for the *Semestre d' Hiver*, 1866-67, at the *École de Médecine*, and thereafter for a short time he studied at Vienna and Berlin. An Englishman by birth, he set up practice in Worcester in 1867, and took his M.R.C.S. in the following year. By his ability and upright character he made rapid progress in his profession. He was an expert operator, and in 1879 was appointed surgeon to the Worcester General Infirmary, maintaining his connection with the hospital till shortly before his death. He had retired from active practice in 1913, but when the war broke out he took up the practice of his two sons, who were called to the front. This seems to have been too much for his strength, and he died from influenza, aged 70 years.

CURRENT TOPICS.

UNIVERSITY OF GLASGOW: GRADUATION IN MEDICINE.—A special graduation ceremony, held to enable graduates in medicine to enter upon professional service without delay in view of the demand for doctors at the front, took place in the Bute Hall on 8th March. Fifty-two graduands, of whom ten were ladies, were capped by the Vice-Chancellor, Principal Sir Donald MacAlister. Of the forty-two men all, except one or two for various reasons ineligible, have signified their intention of entering either the naval or the military medical service. At the close of the ceremony the Vice-Chancellor briefly addressed the graduates, holding up to them as an incentive the example of the Glasgow men and women who had made famous throughout the world the name of its schools of medicine. The following is a list of the graduates:—

BACHELORS OF MEDICINE AND BACHELORS OF SURGERY (M.B., CH.B.)

I. WITH HONOURS.

Jane Stalker.

II. WITH COMMENDATION.

John Dunbar.

Clive Alan Whittingham.

Marion Baillie Darling Wilson.

III. ORDINARY DEGREE.

William Dick Allan.

John Alston.

William Baird.

Christina Blair Buchanan.

Duncan Cameron.

Joseph Chalmers.

Douglas Hamilton Coats.

William Kerr Connell.

Alexander Findlay Cook.

Archibald Shankland Cook.

Walter Gow Cook.

John Norman Cruickshank.

Andrew Davidson.

Jane Beattie Davidson.

James Brown Fisher.

Matthew Mair Frew.

Thomas Ronald Fulton.

William Hamilton Gibson.

Jessie Crawford Gilchrist.

John Glaister.

James Scott Kinross.

George Kirkhope.

III. ORDINARY DEGREE (*continued*).

William Joseph Brown Lavery.
 Robert Lindsay, M.A.
 Dorothy M'Cubbin.
 James Wallace Macfarlane.
 John MacInnes.
 Keith Stuart Macky.
 Duncan M'Laren.
 Elizabeth Stewart Martin.
 Frederick Robertson Martin.
 James M'Donald Matheson.
 William Watson Morison.
 Alexander Morton.
 William O'Brien.

James Alexander Paterson.
 Thomas Smith Paterson.
 James Herbert Paul, M.A., B.Sc.
 William James Poole.
 Thomas Joseph Desmond Quigley.
 James Richardson.
 Alexander Wilkie Ritchie.
 George William Ronaldson.
 Mary Helen Routledge.
 Mary Ishbel Sinclair.
 William Mitchell Stewart.
 John Lawrence Torley.
 Robert Smillie Weir.

The following passed with distinction:—*In Surgery and Clinical Surgery*—George Kirkhope. *In Medicine and Clinical Medicine*—Jane Stalker. *In Midwifery*—William Dick Allan, Joseph Chalmers, John Dunbar, Mary Helen Routledge, Clive Alan Whittingham, Marion Baillie Darling Wilson.

At the same ceremony Mr. Walter Gow Cook also graduated as Master of Arts.

APPOINTMENTS.—The following appointments have recently been made:—

Royal Army Medical Corps (20th March): To be temporary Captains—Temporary Lieutenants D. S. Brough, M.B., Ch.B. Glasg. (1911); F. C. Macaulay, M.B., Ch.B. Glasg. (1908).

23rd March: To be temporary Lieutenants—P. A. McCallum, M.B., Ch.B. Glasg. (1913); R. C. Corbett, M.B., Ch.B. Glasg. (1911); A. H. Arnott, M.B., Ch.B. Glasg. (1907).

26th March: Supernumerary Captain R. Gale, D.S.O., M.B., Ch.B. Glasg. (1909), is restored to the establishment.

30th March: To be temporary Captains—Temporary Lieutenants W. W. Turner, M.B., Ch.B. Glasg. (1902); A. H. Davidson, M.B., Ch.B. Glasg. (1912).

1st April: To be temporary Lieutenants—D. Morrison, M.B., Ch.B. Glasg. (1900); D. C. Suttie, M.B., Ch.B. Glasg. (1909); J. A. H. Telfer, M.B., Ch.B. Glasg. (1911); T. P. Hutchison, M.B., Ch.B. Glasg. (1915); P. Figdor, M.B., Ch.B. Glasg. (1913).

4th April: H. Chaffer, F.R.C.S., to be temporary Honorary Major whilst employed at the Red Cross Hospital, Bellahouston.

W. Gemmell, M.B., C.M.Glasg. (1888), F.R.C.S., to be temporary Honorary Captain whilst employed at the Red Cross Hospital, Bellahouston.

8th April: To be temporary Captain—J. R. Currie, M.D. Glas. (M.B., 1898). To be temporary Lieutenants—C. Cairnie, M.B., C.M.Glasg. (1897); R. Orr, M.B., Ch.B.Glasg. (1901).

11th April: Granted temporary rank as Major whilst commanding a Field Ambulance—Temporary Captain G. D. McLean, M.B., Ch.B.Glasg. (1912).

R.A.M.C., Territorial Force (17th March): Lowland Field Ambulance—Lieutenant H. T. Findlay, M.B., Ch.B.Glasg. (1915), to be Captain; Lieutenant N. C. Scott, M.B., Ch.B.Glasg. (1908), F.R.C.S.E., to be Captain.

24th March: Lowland Field Ambulance—Major M. Dunning, M.B., C.M.Glasg. (1895), to be temporary Lieutenant-Colonel while in command of a Field Ambulance.

1st April: Lowland Field Ambulance — Lieutenant W. Combe, M.B., Ch.B.Glasg. (1915), to be Captain.

Scottish Command Orders (5th April): The following gentlemen have been appointed Civil Medical Practitioners under Article 384, Royal Warrant: J. Hogg, M.B. C.M.Glasg. (1883), at Troon; J. Jack, M.D.Glasg. (M.B., 1895), at Kilwinning.

THE TRIPLE QUALIFICATION.—At the examinations of the Board of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow, concluded on 7th April, the following candidates, having passed their final examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. & S.G.:—Zachariah Albert Green, James Edward Ainsley, John Cardew Bedwell, Harold Cranwell Aloysius Haynes, Bertram Conrad Haller, James Byrne, James Virgil Reynolds Rohan, Salamon Julius Abrahams, James Blackburn, Charles Harris, Andrew Gaston, and Robert Christian Wilson Spence. *Medicine*.—Stanley Wall Hoyland. *Surgery*.—John Joseph Curtin. *Midwifery*.—John Adami and John Joseph Curtin. *Medical Jurisprudence*.—John Herbert Blackburn, Reginald Vincent Clarke, Charles George Book, William McElroy, and Maurice Andrew White.

At the examinations concluded at Glasgow on 21st April, the

following candidates, having passed the final examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:—William Paterson Hay Lightbody, Glasgow; John Park Mathie, Bilston, Staffs.; John Robert Beith Robb, Glasgow; Alexander Morrison, Glasgow; Thomas Jackson, Wishaw; Andrew Smith, Jun., Whickham, co. Durham; John M'Cartney, Girvan; Ronald Harley Rattray, Melbourne; Thomas Marshall Metcalfe, Glasgow.

LICENCE IN DENTAL SURGERY.—At the recent examination of the Royal Faculty of Physicians and Surgeons of Glasgow for the licence in Dental Surgery, the following candidates passed the final examination and were admitted Licentiates:—Aleck Webster Murdoch (with honours), Garmouth; Charles Henry Harrison, Crosshaven, Co. Cork; William George Mitcheson, Seaton Hirst; William Hugo Cilliers, London; Arthur Taylor Barrett, Kilmarnock; Jacobus Johannes Stander, London; William George Hodgetts, West Bromwich; Froude Cheslyn Fritche, London; Tom Merchant Hopgood, Sunderland; William Thom, Glasgow; John Bell, Paisley; Alexander Findlater Junor, Glasgow; Thomas Ignatius Murray, Glasgow; Daniel Mackenzie Gray, Glasgow; Benjamin Alexander Coid, Glasgow; Richard Grierson Fleming, Uddingston; Arnold Joy Duncan, Uddingston; David Couper, Glasgow; Charles Hoffmann, Belfast.

At the recent examination of the Royal College of Surgeons of Edinburgh the following candidates passed the final examination, and were granted the diploma L.D.S., R.S.C. Edin.:—William Alexander Rankin, Glasgow; Aubrey Claud Forster Barrow, Birmingham; George William Young, Kidderminster; Hamish Mackay Cranna, Fraserburgh; James Leo Farnon, Morpeth; John Forbes Campbell, Kincardineshire; Douglas Mitchell Mackenzie, Inverness; William Archibald Mein, Bombay; David Coupar Lamond, Dundee; Johannes Jacobus de Witt, South Africa; and Henry Cecil Mackenzie Morgan, Stornoway.

EXTRA-MURAL TEACHING IN GLASGOW.—At the distribution of prizes to the students of St. Mungo's College, which took

place on 22nd March, Dr. Ebenezer Duncan, President of the Royal Faculty of Physicians and Surgeons, referred to the position of the College and to the future of extra-mural teaching in Glasgow. He said that the Royal Faculty of Physicians and Surgeons had a very great interest in St. Mungo's College. It had been suggested by some ill-informed persons that the day for that College had almost passed, and that there might be some changes in the future which would make it in its present form unnecessary. They had had a full-dress debate on that subject in the Royal Faculty, and had come to a contrary opinion. They held that St. Mungo's College was performing a very useful and almost an essential part in medical education in Glasgow. They believed that extra-mural teaching was not a thing that was altogether passing. They believed it would continue and that it was right that it should continue. They believed there was still a long period of usefulness for St. Mungo's College. He had certain personal reasons for desiring that College to continue. Thirty years ago he was a director of the Royal Infirmary, when they went to Parliament and got an Act transforming the Royal Infirmary Medical School into St. Mungo's College, and making it possible at some future time for the College to be affiliated with the University. He thought it was quite possible that that Act might come to fruition sooner or later; but in the meantime they were satisfied that the College was flourishing and that it was of great use as an extra-mural school for the teaching of medicine, and also was of valuable service to the Royal Infirmary in providing it with the necessary staff of assistants for the treatment of the patients in the wards.

GLASGOW HOSPITAL SUNDAY FUND. — The twenty-second annual meeting of the Glasgow Hospital Sunday Fund was held in the Merchants' House on 22nd March, under the presidency of Sir James Bell, Bart., the promoter of the movement. In his speech in favour of the adoption of the report, Sir James stated that during the existence of the Fund about £112,000 had been distributed. Prior to its establishment the churches contributed £2,000 annually, now the contributions amounted to £5,000. There had been a great change in the hospital accommodation

in Glasgow. The Royal Infirmary, when established in 1803, treated all diseases, surgical, medical, and infectious. The patients were now treated in the palatial new buildings, and there were in addition the Western and Victoria Infirmaries. In these institutions patients received better attention than could be procured even in the wealthiest private houses, and men had been trained in the Glasgow infirmaries who ranked among the foremost physicians and surgeons in the kingdom. Greater support for the infirmaries was required. On the three institutions named there was an annual deficit of £60,000, which was far too large a sum.

Mr. James Macfarlane seconded, and the report was approved. It bore that the total income from churches and Sabbath schools, including donations and bank interest, amounted to £5,045, 12s. 9d., a decrease of £199, 12s. 9d. The average amount per church was £10, 15s. 10d., compared with £11, 11s. 1d. in 1914, and the average per Sabbath school £1, 19s. 11d., against £2, 1s. 2d. The sum set aside for the infirmaries was £4,820, and the allocation made in proportion to the number of beds was as follows:—Royal, 740 beds, £2,293, 15s. 3d.; Western, 556 beds, £1,723, 8s. 5d.; Victoria, 259 beds, £802, 16s. 4d.

GLASGOW ROYAL CANCER HOSPITAL.—The twenty-fifth annual general meeting of subscribers to the Glasgow Royal Cancer Hospital was held in the Christian Institute, Glasgow, on 27th March, Lord Scott Dickson in the chair. The adoption of the report was moved by the chairman, who said that it showed that the number of patients last year was larger than in the preceding year, and that although financially the hospital, like all similar institutions, was feeling the strain of the war, there was nothing in the figures to cause discouragement. He based that statement on the fact that the whole period of last year was covered by the war, pointing out that the position was slightly better than in 1913, the last complete year of operations before the war. It was necessary only to visit the hospital to become convinced that it was thoroughly discharging its duty to those who availed themselves of its succour and support. He regretted that owing to the demands of the war the research department of the hospital (apart from the research connected

with the cases of individual patients) had had to be closed down. The hospital had, however, to congratulate itself on the gift by Mr. W. J. Chrystal of the s-rays apparatus, which had provided a new means of experimental inquiry as to whether, and if so how far, these rays were likely to be of use in combating the ravages of cancer.

Sir George T. Beatson, in seconding, said that since last year's meeting he did not think anything specially new had been brought out either as to the prevention or the cure of cancer. During the last eight years no fewer than twenty-six certain cures for cancer had been produced. They had had their day, and all of them had been found wanting. As regards any actual medical cure, so far there had been no advancement. For operable cases the only safe remedy was the surgeon's knife. In the non-surgical treatment of cancer, for inoperable cases, the field at present was held by the three agents—electricity, heat, and radium. They had recently, through the kindness of Mr. Chrystal, installed the s-rays, which would be given a fair trial, and they had also had from the West of Scotland Radium Committee a supply of radium emanations. Of the results of the latter it was too early yet to speak, but he did not think that radium would prove to be the panacea for cancer that was thought, though within certain restrictions radium and other rays might have, and had, a beneficial effect in the treatment of the disease.

CARE OF DEFECTIVE CHILDREN.—The annual meeting of the Glasgow Association for the Care of Defective and Feeble-Minded Children was held on 16th March, Dr. Yellowlees in the chair. The chairman stated that in May next the grant from the Education Department was to be stopped. The grant amounted to £336, and its withdrawal was a very serious business. They were thankful that it had been given for so long, but the directors would have to consider how the deficiency was to be made up. The report, which was read by Mr. A. A. Mitchell, the honorary treasurer, stated that the number of girls in the home at Kirkintilloch on 31st December, 1915, was 88, compared with 86 at the end of 1914, and the number of certified cases was now 48. In addition to these there were

still in the home 17 cases committed under the Children Act, who were maintained by the Home Office and School Boards. There were also in the home, with the sanction of the Board of Control, 22 uncertified cases, and in respect of seven of these girls small payments were received from the parents and guardians, but except for these trifling sums the whole 22 had been maintained by the voluntary contributions of the subscribers to the Association. The work of the home was being carried on with great economy, but subscriptions and donations were urgently required.

THE ARMY AND MEDICAL MEN: NEW SCHEME OF ENROLMENT.
—The Press Bureau has issued the following notice:—

In order to maintain the supply of medical officers required to meet the needs of the Military Services, it is urgently necessary in the interests of the civil community no less than of our armies that all qualified medical men not exceeding 45 years of age, irrespective of their circumstances, should without delay enter their names under the enrolment scheme which has been established by the Central Medical War Committee, and has the authorisation of the War Office.

The work of enrolment is carried out by three representative bodies of the medical profession known as the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee, and the Irish Medical War Committee. It should be understood that enrolment does not mean that the medical man is at once called up for service in the R.A.M.C.; he may never be called up, and in any case will not be called up until the proper time has come for his services to be accepted. The real purpose of the scheme is to secure that those doctors are selected for military purposes who can best be spared at the particular date and from the particular place, with due regard to the needs of the civil population, to the personal circumstances of the doctor, and to the requirements of the armies.

To carry out efficiently the comparative process necessary for an equitable distribution of the burden as it affects the medical profession and the civil population, it is evident that all doctors of suitable age should have offered themselves for service, quite

irrespective of their particular circumstances, whatever these may be, so that a proper selection may be made by a body equipped with the requisite information from all parts of the country, and thus competent to make the necessary comparisons. The only alternatives are haphazard recruitment and arbitrary demand.

It is for these reasons that the War Office has officially recognised, and now relies upon, the Central Medical War Committee and the corresponding committees in Scotland and Ireland. These committees include representatives of the Royal Colleges of Physicians and of the Royal Colleges of Surgeons, of the universities and medical schools, and of the British Medical Association, and have associated with themselves in their work representatives of the Government departments mainly concerned.

The committees have an organisation of representative local committees in all parts of the three countries, from which they obtain local information and advice, and they work in daily contact with the various Government departments concerned.

Furthermore, for the purpose of considering and advising through the Central Committee on cases in England and Wales having such special features as exist, for instance, in regard to the staffs of the Metropolitan hospitals, a Committee of Reference has, with the approval of the War Office, been now established by the Royal College of Physicians of London and the Royal College of Surgeons of England, acting jointly.

Thus it will be seen that in order to secure the desired result, that is to say to obtain the medical officers needed for the Army, month by month, with the least possible interference with the needs of the civil population and the least possible injury to the individual practitioner, it is necessary that every medical man under the age of 45 who does not hold a certificate of enrolment (or of provisional acceptance by the War Office) should enrol at once. Only in this way can the exigencies of the situation be fairly and efficiently met.

WAR HONOURS FOR GLASGOW GRADUATES.—The *London Gazette* of 30th March announces that His Majesty the King

has been graciously pleased to confer the Military Cross upon Lieutenant John A. Harper, R.A.M.C., for conspicuous bravery at Ypres salient on the 2nd and 4th March. Lieutenant Harper, who is attached to the 52nd Field Ambulance, is a student of Glasgow University, where he took the degree of M.A. in 1908, and those of M.B., Ch.B. in 1912. After graduation he was house physician in the Western Infirmary in the wards of Professor Stockman. He then visited America and India, and on his return was appointed house surgeon to the Glasgow Maternity Hospital. He then settled in practice in Ibrox, and joined the R.A.M.C. in December, 1915.

In Sir John Nixon's despatch dealing with the campaign in Mesopotamia there occurs in connection with the Kut-al-Amara operations the name of Major Samuel Anderson, I.M.S. Major Anderson is a Glasgow man, and a student of Glasgow University. He took the degree of B.Sc. in 1894, and those of M.B., C.M., with commendation, in 1896. He is civil surgeon for the Province of Bihar, and a Fellow of the Society of Tropical Medicine and Hygiene. He has published several papers of medical and surgical interest in British and Indian medical journals.

THE LATE CAPTAIN JOHN WILSON, R.A.M.C.—Particulars of the death of Mr. John Wilson, Hamilton, who was attached to the 10th Battalion Duke of Wellington's Own, are furnished in letters received from the Colonel-Commanding and the Chaplain. The Colonel states that at 9.30 on 9th March a message was received that several men were wounded in a central trench. Captain Wilson at once volunteered to go to their assistance, although it was necessary to cross absolutely open ground swept by the fire of the hostile trenches. He reached the wounded men, bandaged up those who most required it, and was on his way back to shelter when he was fired upon by the Germans from their front line trenches, and a bullet struck him just above the heart. He died in a few minutes. The Colonel adds that Captain Wilson by his energy and devotion to duty had earned the appreciation of every man in the battalion, and the Colonel only ten days before had had the pleasure of recommending him for the Military Cross.

NEW HOSPITAL FOR LIMBLESS SAILORS AND SOLDIERS.—A meeting called by the Provisional Committee in connection with the scheme to establish in the West of Scotland a hospital for limbless sailors and soldiers was held in the Council Hall of the City Chambers, Glasgow, on 29th March, and was attended by a large and representative gathering. From its outset the scheme was warmly supported, and prior to the meeting subscriptions amounting to over £20,500 had been received, and Erskine House had been placed at the disposal of the promoters by its owner, Mr. Thomson Aikman. H.R.H. Princess Louise had consented to become a patron, Mr. A. J. Balfour an honorary vice-president, and Admiral Jellicoe a patron. Messages of sympathy and encouragement were received from all of these and from the Marchioness of Bute, who stated in her apology for inability to be present that Lord Bute had pleasure in subscribing £1,000.

Lord Provost Dunlop presided at the meeting, and among others present were the Marchioness of Ailsa, Lord and Lady Inverclyde, Lord Newlands, Sir Thomas Glen-Coats, Bart; Sir William and Lady Macewen, Sir Archibald and Lady McInnes Shaw, Sir James Bell, Bart; Mrs. Dunlop, Dr. James A. Adams, Mr. R. A. Oswald of Auchencruive, Mr. Thomson Aikman of Erskine, Professor and Mrs. Barr, Mrs. Pollock of Glenfairn, Ayr; Miss Anderson of Barskimming, Mr. David McCowan, Mr. John Reid, Mr. Harold E. Yarrow, Colonel J. Smith Park, M.V.O.; Mr. C. J. Cleland, M.V.O.; Mr. John S. Samuel, and Mr. H. Carvick Webster.

In explaining the objects of the scheme, the Lord Provost said the word "limbless" conjured up in one's mind not only a pathetic condition of infirmity, but a sense of duty towards the men who had fought for us, and whose case constituted an irresistible claim upon our sympathy and help. That meeting had accordingly been called for the purpose of launching a movement to deal in a comprehensive and adequate manner with the claims of soldiers and sailors crippled in the war by the loss of their limbs. Unfortunately the number of men who required to have arms or legs amputated was already very large, and was daily increasing. The only provision made for them was a hospital in the vicinity of London, which could only

accommodate about 400 patients, and at present there were something like 2,000 applicants on the waiting list. Many of them belonged to Scotland, and it was to meet the necessities of these men that they proposed to establish a hospital in the West of Scotland. Steps had been taken to ascertain whether the institution would receive the same recognition and enjoy the same privileges with regard to Government grants as similar hospitals in England, and he was happy to be in a position to state that they had received the most satisfactory assurances from both arms of the Service that the hospital would be under the independent control of the committee, and would be recognised by the naval and military authorities. Indeed, the War Office had expressed the pleasure with which they had learned of the project, and had promised to give it the utmost assistance and encouragement in their power. Surgeon-General Sir Alfred Keogh wrote that he was anxious that they should push on as rapidly as possible with the scheme, and both he and Surgeon-General Sir Arthur May had agreed to join the committee as representing the Army and Navy respectively. The committee had in view a most suitable house within easy access of Glasgow, and they had had placed before them a most generous offer of a convalescent home in the country where the men could be sent after being fitted with artificial limbs prior to resuming work in civilian life. He had no hesitation in commending this scheme to the generous support of the people of Glasgow and the West of Scotland, and he hoped that other districts and towns would assist them in raising a substantial sum for the equipment and maintenance of the hospital. The Lord Provost further stated that Erskine House had been placed at their disposal by Mr. Thomson Aikman practically as a free gift. The house had been examined a few days ago, and he was informed that if it had been built for the purpose it could not have been more suitable.

Sir William Macewen, who gave an account of the movement from its inception, said that notwithstanding the excellent work done at the Edenhall Hostel, Berwickshire, and at Roehampton Hospital, it was apparent that there was abundant room for the establishment of another hospital for limbless men in order to relieve the pressure on these institutions and to allow the

afflicted men to return the sooner to active life. The object of the proposed hospital was to receive and treat men who had lost their limbs or who had faulty use of their injured limbs after their discharge from the general hospitals, and to fit the limbless with artificial limbs and teach them to use these. While in the hospital time and opportunity would be afforded for making inquiry into the circumstances of the patients and aiding them to acquire knowledge, physical and mental, which might aid them in their future occupation. They might also be taught to employ their spare time in useful and remunerative work, and those of dexterous hand and intelligent mind might be turned into artificial limb-makers. Every effort would be made to fit the men to earn their own living, and communication would be established with county representatives and with industrial firms so that they might be distributed wherever suitable work could be obtained. The procuring of artificial limbs in sufficient quantity had been put forward as a difficulty. But London was not the only place where artificial limbs were made and fitted. Some very good makers were to be found in provincial towns, and there were several successful makers of artificial limbs in Glasgow.

On the motion of the Lord Provost, seconded by Sir William Macewen, a resolution was adopted cordially approving of the establishment of a hospital to be called "The Princess Louise Scottish Hospital for Limbless Sailors and Soldiers," and commending it to the generous consideration of all interested in the welfare of the men who, after fighting for King and country abroad, returned maimed and wounded.

On the motion of Lord Newlands, seconded by Lord Inverclyde, the following were appointed as the committee:—The Lord Provost and Mrs. Dunlop, Surgeon-General Sir Arthur W. May, K.C.B., the Admiralty; Surgeon-General Sir Alfred Keogh, K.C.B., the War Office; the Marquis and Marchioness of Bute, the Marquis and Marchioness of Ailsa, Lord and Lady Inverclyde, Sir William and Lady Macewen, Sir Archibald and Lady M'Innes Shaw, Sir John Lindsay, Mrs. J. F. Pollock, Glenfairn, Ayr; Miss Anderson, Barskimming, Mauchline; Professor Archibald Barr and Mrs. Barr, Mr. C. J. Cleland, M.V.O.; Mr. and Mrs. David M'Cowan, Mrs. Lithgow, Drums, Langbank; Miss Lithgow,

Mull; Mr. and Mrs. John Reid, Mr. Harold E. Yarrow, Scotstoun; Colonel J. Smith Park, M.V.O.; Mr. H. Carvick Webster, Mr. John S. Samuel, Dr. James A. Adams, Dr. Pringle, Colonel R. C. Mackenzie, C.B.; Major Harvie Anderson, Mr. Adam Ker, C.A.; Mr. R. J. Dunlop, Bailie M'Connell, Councillor J. W. Stewart, Mr. William Guy, Mr. Thomas Binnie, Mr. David Perry, Mr. John Fairlie, Provost Smith, Kilmarnock; Provost Mitchell, Ayr; Deacon Convener Hugh Alexander, ex-Deacon Convener William Beattie, Sir John Ure Primrose, Bart; Mr. J. J. Spencer, and the Senior Magistrate of Glasgow. The Lord Provost was also appointed president of the hospital, and Mr. William Guy and Mr. John S. Samuel were appointed joint honorary secretaries.

Since the meeting contributions, many of them for sums of £1,000, have continued to flow in, and by 15th April the subscriptions to the fund amounted to £52,083, 14s. 8d.

REVIEWS.

The Vicious Circles of Neurasthenia and their Treatment. By JAMIESON B. HURRY, M.A., M.D.Cantab. London: J. & A. Churchill. 1915.

IN the experience of practitioners there is no clinical condition which gives rise to more surprise and even depression of spirit than the complexity of symptoms which we are accustomed to call neurasthenia.

In this delightful little book the author deals with the establishment of vicious circles in this condition. The confusion of cause and effect, with the difficulty of disentangling one from the other, offers a most attractive subject, and one that throws a flood of light on the many conditions which are brought under the reader's notice. A perusal of this volume will amply repay one, and every practitioner should secure a copy.

Pediatrics and Orthopædic Surgery. Edited by JOHN RIDLON, A.M., M.D. With the collaboration of CHARLES A. PARKER, M.D. The Practical Medicine Series. Vol. V. Chicago: The Book Publishers. 1914.

Pediatrics and Orthopædic Surgery jointly constitute the fifth volume of the "Practical Medicine Series." These subjects are dealt with by Dr. Abt, Professor of Pediatrics, North-Western University Medical School, and Dr. John Ridlon, Professor of Orthopædic Surgery, Rush Medical College. All the diseases of children are brought under the review for the year by Dr. Abt, and physicians will find plenty of material culled from many sources. Dr. Ridlon's interpretation of his editorial duties is rather wider than that of his colleague's, and the reader is grateful for his racy comments and searching criticisms. The subject of orthopædics is rather neglected in our country, chiefly

due, we imagine, to the want of enterprise of hospital managers. In America the case is otherwise. In this volume we find how really big and important the subject is, and we very cordially commend the book to all interested.

A Nursing Manual for Nurses and Nursing Orderlies. By DUNCAN C. L. FITZWILLIAMS, M.D., F.R.C.S. London: Henry Frowde and Hodder & Stoughton. 1914.

DR. FITZWILLIAMS has been very successful in his attempt to combine in one volume the principles of nursing appropriate both to peace and war, and his *Manual* should be found of much value both to nurses and to Red Cross workers. It is a feature to be commended that his descriptions of disease are associated with an exposition of the anatomy and physiology of the organs concerned, which is neither too technical nor too perfunctory, and which must serve to give the reader a more reasoned understanding of the symptoms she has to observe. Considerable space is devoted to first aid and to ambulance and stretcher drill, and though the book is in no sense a military manual, the nursing orderly will find a careful perusal of it a very useful preparation for his military duties. The illustrations are numerous and clear, the style is simple and attractive, and at the end of his task the reader will feel that he has acquired a large amount of information in a very pleasant manner.

The Practice of Surgery. By RUSSELL HOWARD, M.S. Lond., F.R.C.S. Eng. London: Edward Arnold. 1914.

MR. RUSSELL HOWARD bases his *Practice of Surgery* on the teaching of the London Hospital, and has written it in response to the request of a large number of past and present students. It is a systematic text-book, and has the inevitable shortcomings of such, but the author has succeeded in marking his work with the imprint of a sound teacher and experienced surgeon.

Lack of space makes it impossible to do justice to such a book in detail, but Mr. Howard's handling of some problems prominent in surgical literature at the moment may be indicated. His teaching in the section on syphilis is concise and well-defined. Generally accepted modern methods of treatment are clearly presented, and the author's views, particularly with regard to prognosis, are characterised by much caution.

He does not describe an operation of his own for inguinal hernia, contenting himself instead with careful description of the work of others. Those who are called upon to deal with the irritating problems created by the Workmen's Compensation Act should gain valuable help from the section dealing with hernia in relation to that legal measure.

The directions given on treatment of fractures lean to no extreme. Each case is to be considered on its own features, and operative or non-operative methods adopted after detailed study of the injury. As is only right, a generous portion of the book is devoted to the surgery of abdominal conditions, and the author's views on this subject cannot but meet with general approval.

A good index, numerous excellent illustrations, and clear printing go to enhance this valuable addition to the literature of surgery.

A Handbook of Medical Jurisprudence and Toxicology. By WILLIAM A. BREND, M.A., M.B., B.Sc. Second Edition. London: Charles Griffin & Co., Limited. 1915.

THIS is literally a handbook, and yet in a matter of 300 pages there is compressed an exceedingly readable account of the various subject headings of medical jurisprudence and toxicology. The material is well displayed and the succinct accounts of illustrative cases are very apposite. Various statistical tables have been incorporated in the text, those giving the deaths from accidental and suicidal poisoning being valuable as showing the relative importance of the different causative agents. Altogether the book forms a reliable conspectus of the subjects, and one which can be highly commended to the student.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

EDITED BY ROY F. YOUNG, M.B., B.C.

M E D I C I N E.

Role of the Lymphatics in Ascending Renal Infection. By Daniel N. Eisendrath, M.D., and Jacob v. Kahn, M.D. (*Jour. of the Amer. Med. Assoc.*, vol. lxvi, No 8).—This paper consists of records of experiments carried out on dogs and rabbits to study the route taken by ascending infection of the renal tract. The technique was to insert a No. 4 or a No. 5 ureteral catheter into the bladder after thorough cleansing of the genitalia, and then to inject saline emulsions of agar cultures of organisms commonly found in urinary infections. Paraffin sections of kidney and ureter were afterwards studied. The organisms used were bacillus coli, staphylococcus pyogenes aureus, and proteus vulgaris. It was found that inflammatory infiltrations follow in a most accurate manner the course of the lymphatics. The submucosa of the bladder, especially around the smaller vessels, became first infected, and then the infection could be followed up the ureter in the submucosa. As the infection proceeds, the other coats become affected, with exception of the mucous coat, which seems always to remain intact. In the pelvis of the kidney the infiltration is first observed in the submucosa; the cortex may also be attacked, and extension from both of these situations to the medulla finally occurs. Any idea of a spread by the blood-stream is negated by facts that cultures of heart's blood always remained sterile.—LEONARD FINDLAY.

The Relation of Hæmolysis in the Transfusion of Babies with the Mothers as Donors. By Thomas H. Cherry, M.D., and Edwin G. Langrock, M.D. (*Jour. of the Amer. Med. Assoc.*, vol. lxvi, No. 9).—This work was carried out to see if the blood of the mother was compatible with that of her infant. If this question could be answered in the affirmative, the great advantage of using the mother's blood in cases of emergency, e.g., severe hæmorrhagic disease of the new-born, is apparent. The authors found that the serum of the infant could be mixed with the washed red blood corpuscles of the mother, and *vice versa*, without the slightest trace of hæmolysis resulting, and they concluded that the blood of the mother could be used with the utmost safety for transfusion, and, as a matter of fact, they have adopted the method with good results. They advise the indirect method of transfusion, i.e., by

means of a syringe, so that a measured quantity of blood can be utilised, for if too large a quantity were injected dilatation of the heart and sudden death might result in consequence of the anæmia. They consider 60 to 75 c.c. sufficient to supply the infant with the necessary elements to promote clotting and ample cellular elements to replace those lost by hæmorrhage.—LEONARD FINDLAY.

Case of Polio-Encephalo-Myelitis. By Leonard Guthrie (*Proc. of the Roy. Soc. of Med.*, Sect. of Diseases of Children, 26th November, 1915).—The case was that of a girl, æt. 8 years, who took ill in March, 1914, with a sore throat, followed on fourth day by measles. The sore throat was attributed to diphtheria. Ten days later the child became unconscious. She did not speak for three weeks, and during that time the only sign of consciousness was that the eyes would follow a lighted match. Six weeks after the onset of the illness she could only say "Dad" and "Mum," and could not sit. By November, 1914, she could stand with support and could walk holding on to chairs; could speak, but only very slowly. Since then there had been no improvement. On admission to hospital in 1915 she was well nourished; the face was expressionless; intelligence normal; there was a right internal squint, with weakness of lower half of left side of face; speech was slow; tremor of both arms, which were otherwise normal. Lower limbs showed neither atrophy or spasticity; plantar reflexes extensor in type; knee-jerks were absent; slight Romberg; gait halting and very unsteady; child could only walk a few steps unsupported on account of swaying. Case was diagnosed as cerebellar encephalitis with implication of cerebello-spinal apparatus and posterior columns, and was chiefly interesting in view of the fact that it followed measles. In the discussion that followed the demonstration of the case, J. D. Rolleston expressed the opinion that the sore throat and rash were neither diphtheria nor measles, but merely symptoms of the encephalitis, as a sore throat and a morbilliform rash are not unknown in this condition.

—LEONARD FINDLAY.

SURGERY.

Uncertainties of Understanding anent Cholelithiasis. By Charles C. Mapes (*Amer. Jour. of Surgery*, February, 1916).—It seems strange in times of such great advances in every department of scientific endeavour that cholelithiasis should still be regarded by many as a disorder to be treated on medical lines. No chemical agent has yet been discovered which can disintegrate or dissolve gall-stones within the body without inflicting great damage to the tissues. There is no pathognomonic sign of the presence of gall-stones, and only one method of examination will inform the observer of their presence or absence, that procedure being exploratory laparotomy. The hypothesis appears to be irrevocably established that the primary factor in setting up conditions favourable to the formation of gall-stones is bacterial invasion, and this may occur through the general circulation, the lymphatic channels, or by contiguity of structure. Necropsies often reveal the presence of gall-stones in individuals who never complained of symptoms pointing to disease of the hepato-cystic tract, and on this account writers have referred to cases of innocent or symptomless

cholelithiasis. The author denies that the condition can ever be innocent, and explains the lack of symptoms by the incompleteness of the medical examination.

In treatment, the only procedure worthy of consideration is celiotomy, and if the operation shows a normal hepato-cystic tract, but disease elsewhere in the abdomen, then it is still of advantage to the patient. As regards the operation itself, the author is of opinion that the best results are obtained from cholecystostomy, cholelithotomy, and temporary drainage. He believes that cholecystectomy is not warranted unless the gall-bladder has been damaged beyond functional restoration, or there is demonstrable malignant disease.

—CHARLES BENNETT.

Mosetig-Moorhof's Bone Plug for Replacing Bone Tissue.

By M. H. Blahd (*Amer. Jour. of Surgery*, February, 1916).—Several methods of closing bone defects following such destructive diseases as osteomyelitis and tuberculosis have been devised, but all of them have fallen short of expectation. Mosetig-Moorhof's plug in the hands of the author has given good results, and seems to be the best means of filling gaps in bone by the use of a foreign substance. The plug consists of 60 parts of the finest powdered iodoform, and 40 parts each of oil of sesame and spermaceti. This mixture is a hard mass at room temperature, but at 50° C. it can be shaken to a perfect emulsion. The bone cavity must be cleared of every particle of diseased tissue, and rendered as dry as possible, although in this latter connection the author thinks that gauze sponging is sufficient, and that the use of sterilised hot air is unnecessary. The plug mixture is then poured into the cavity and, if possible, the soft tissues are closed over it by stitches set rather more widely apart than in an aseptic wound. Any sinuses present are scraped, and left to act as drainage channels. Fibrous connective tissue growing from the periphery of the cavity forces the plug little by little out of the cavity; but if there is no outlet the mass is absorbed, and that this takes place is shown by iodoform being found in the urine. Finally, calcium salts are deposited in the new connective tissue.

The author has used the method with success in tuberculous bones and in chronic osteomyelitis following compound fractures and bullet injuries.

—CHARLES BENNETT.

DISEASES OF THE EYE.

Etiology of Glaucoma. By R. H. Elliot (*The Ophthalmoscope*, January, February, March, and April, 1916).—In this series of papers Colonel Elliot gives a critical summary of the important work which has been undertaken in recent years to elucidate the etiology of glaucoma. He differentiates *pathological anatomy* from *pathogeny*, "the science of the generation and development of disease," and from *etiology*, "the account of the causes of disease." Glaucoma is not a single disease, but it is a label for a number of conditions, the common characteristics being the rise of intra-ocular tension. All the different factors may be classified under two headings—(1) those influencing the balance of secretion and excretion of the intra-ocular fluid, and

(2) those directly or indirectly determining a change in the vascular conditions prevailing within the eye.

The pathological anatomy of glaucoma.

Changes in the vortex veins.—Birnbacher and Czermak found extensive changes both in and around the vortex veins in glaucomatous eyes. Koster and others produced a rise in the intra-ocular pressure by ligaturing these veins in rabbits. The effect was lessened when only two or three were ligatured. Stirling, on the other hand, found that these changes were rare in the eyes he examined. It has also been stated that the same changes may be found in eyes which have not been affected with glaucoma.

Disease of the vessels as a cause of glaucoma.—Fergus has recently suggested this theory, without pathological findings. The author considers the changes to have been the result and not the cause, although not denying the rôle of venous congestion.

Schnabel's cavernous atrophy of the optic nerve.—This theory has been disproved by the fact that cavernous degeneration occurs without glaucoma; and that it is very rare in most glaucomatous eyes. Holth and Axenfell have shown that the glaucomatous cupping may disappear after a successful operation for relief of increased tension. Lange observed diminution of the cup after myotics. The optic atrophy may continue after the relief of tension, and even in cases in which the depth of cupping shows decided diminution as the result of lowering of the intra-ocular pressure. These cases may be the so-called "essential atrophy" and be quite independent of the pressure, and of the cavernous type. They may also have primary atrophy combined with pressure atrophy. A third explanation is that the atrophy has been latent, and asserted itself as the result of the injury by the pressure to which the nerve has been subjected. Ischikawa has recently stated that caverns are more frequent in recent cases, but he has not suggested that they are independent of pressure.

Fibrosis of the cribriform ligament.—Henderson's views are well known. The author, while allowing that sclerosis of the pectinate ligament may offer an obstacle to the escape of fluid, does not agree that this is the chief of the predisposing anatomical causes of glaucoma. The fibrosis is universal; but glaucoma is not common. Priestley Smith has pointed out that the theory does not account for the shallowing of the anterior chamber and the closure of the angle. Arthur Thomson advanced the theory of the pump action of the ciliary muscle and the iris. He considered the want of elasticity of the thickened fibres of the pectinate ligament as of more importance.

The hydrophyllic theory of the etiology of glaucoma.—Fischer has recently applied his theory of the action of acids and alkalies on the colloidal tissues of the body to the explanation of glaucoma. The theory has been disproved by the absence of thickening of the sclerotic. Treatment by subconjunctival injections of sodium citrate has failed to relieve pressure, but may increase it. Scalinci has recently applied the theory to cases of irritative glaucoma. Distension of the vitreous may be the first incident; but the vitreous is not hydrophyllic.

Closure of the filtration angle is found in nearly all cases. In the first stage the base of the iris is pressed against the periphery of the cornea. Later they become adherent as the result of plastic exudation, early in the acute cases, and much later in simple glaucomas. During these stages fluid may pass from the anterior chamber into Schlemm's canal by the meshes of the iris tissue. Later

the iris becomes firmly compressed against the cornea, and ultimately atrophied. In some cases the iris may be finally drawn back from the cornea by the shrinking of the ciliary processes. The author is of the opinion that the iris becomes pressed against the cornea by the congested ciliary processes in the acute cases, and by the enlarged lens in the simple cases. But as this occurs in all senile eyes no explanation is given why simple glaucoma originates in only a limited number, or why it appears before 50 years of age, when the lens is not yet so large. These and other criticisms the author considers. In the cases with an open angle he quotes Priestley Smith's statement that they are either due to albuminous fluid or that there has been a closed angle which has opened during the preparation of the specimen.

Shallowing of the anterior chamber of the eye.—In a further quotation from Priestley Smith it is suggested that the shallowing of the chamber is due to the large lens, and possibly a relatively small eye. The iris is pushed forward by the engorged ciliary processes.

Dimension of eyes in glaucomatous patients, and the continuous growth of the lens throughout life, contain references to the work of Priestley Smith and Thomson.

The causes of glaucoma.

Age.—Glaucoma appears to be relatively more frequent in each decade after 40 years of age, if allowance is made for the cases over 80 perhaps not all seeking advice, and for the small numbers from which they are drawn.

How does the advance of life cause glaucoma?—1. The alterations in the anatomical conditions have been already mentioned, viz.—(a) enlargement of the lens; (b) slackening of the zonule; (c) thickening of the fibres of the pectinate ligament.

2. Influence of degenerative changes. Increase in the volume of fluid secreted by the eye may be due to—(a) nervous irritation of secretory fibres; (b) degeneration of glandular elements; or (c) alterations in the vasomotor conditions present. All these factors are considered to be of importance, especially the last mentioned. It is probably the chief in such conditions as sleeplessness, anxiety, fatigue, hunger, and injuries of the head, which all precipitate attacks.

3. Pathological tendency to hydrophyllism on the part of the tissues of the eye. It may occur, but is not likely.

4. Autogenetic intoxication may act by obstructing the exit for fluid, or by interfering with the action of the ciliary muscle.

5. Changes in the vascular system. It is now believed by most writers that arterio-sclerosis is not a cause of glaucoma. A local increase of vascular pressure in the vessels of the eye may be a factor, but it is difficult of proof. Loss of vasomotor control is almost certainly a factor of the very greatest importance whether in the system generally or in the eyeball. It is probably the basis of the conditions already mentioned, sleeplessness, cold, hunger, nervous or bodily exhaustion, anxiety, sorrow, constipation, bronchitis, cardiac or hepatic obstruction.

Sex.—Females suffer in the proportion of 56·9 per cent to 43·1 per cent.

Heredity.—Jews, Egyptians, and certain negroes are specially liable. Glaucoma runs also in certain families. It is continuous in descent, exhibits the phenomenon of anticipation, occurs in all forms, and it is transmitted by both sexes. The underlying factor may be a small eye, a want of development of the

angle, any conditions predisposing to nervous or vascular storms, or conditions of environment.

Errors of refraction.—The hypermetrope is most liable. The myope was long considered safe, but that must now be abandoned.

Mydriasis.—Mydriatic drugs, exclusion of light, violent emotions, or depressing diseases may all act in this manner.

Nerve shock and strain, febrile diseases, and injuries, are factors to which reference has already been made under other sections.

These papers are well worth detailed study, and are suggestive of lines for future research.—W. B. INGLIS POLLOCK.

Books, Pamphlets, &c., Received.

Yellow Fever Commission, West Africa. Third Report. London: J. & A. Churchill. (1s. 6d.)

Twelve Lectures on the Modern Treatment of Gonorrhea in the Male, by Dr. P. Asch. Translated and annotated by Faxton E. Gardner, M.D. Illustrated. London: William Heinemann. (5s. net.)

Medical Ethnology, by Chas. E. Woodruff, A.M., M.D. London: William Heinemann. (10s. 6d. net.)

Emergency Surgery, by John W. Sluss, A.M., M.D. Third edition, revised and enlarged. With 685 illustrations, some of which are printed in colours. London: William Heinemann. (17s. 6d. net.)

A Text-Book of Nervous Diseases, by Robert Bing. Only authorised translation by Charles L. Allan, M.D., Los Angeles, Calif. With 111 illustrations in the text. London: William Heinemann. (21s. net.)

The Involuntary Nervous System, by Walter Holbrook Gaskell, M.A., M.D., F.R.S. With coloured figures. London: Longmans, Green & Co. 1916. (6s.)

On Modern Methods of Treating Fractures, by Ernest W. Hey Groves, M.S., M.D., B.Sc.Lond., F.R.C.S.Eng. Bristol: John Wright & Sons, Limited. 1916. (7s. 6d. net.)

Collected Papers on Analytical Psychology, by C. G. Jung, M.D., LL.D. Authorised translation edited by Dr. Constance E. Long. London: Baillière, Tindall & Cox. 1916. (12s. 6d. net.)

The Sex Complex: A Study of the Relationships of the Internal Secretions to the Female Characteristics and Functions in Health and Disease, by W. Blair Bell, B.S., M.D.Lond. London: Baillière, Tindall & Cox. 1916. (12s. 6d. net.)

A New Treatment for Gonorrhœa, by Charles Russ, M.B.Lond., M.R.C.S.Eng., L.R.C.P.Lond. London: H. K. Lewis & Co., Limited. 1916. (3s. net.)

Modern Medicine and Some Modern Remedies: Practical Notes for the General Practitioner, by Thomas Bodley Scott. With a preface by Sir Lauder Brunton, Bart., F.R.S. London: H. K. Lewis & Co., Limited. 1916. (4s. 6d. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDED 22ND APRIL, 1916.**

	WEEK ENDING			
	April 1.	April 8.	April 15.	April 22.
Mean temperature, . . .	41·2°	43·7°	43·4°	44·2°
Mean range of temperature between highest and lowest,	11·2°	14·4°	11·9°	7·4°
Number of days on which rain fell,	3	1	6	7
Amount of rainfall, . . ins.	0·63	0·02	0·92	1·07
Deaths (corrected), . . .	433	414	370	367
Death-rates,	20·7	19·8	17·7	17·5
Zymotic death-rates, . . .	1·9	1·7	1·7	1·3
Pulmonary death-rates, . .	6·2	5·5	5·0	5·2
DEATHS—				
Under 1 year,	76	58	73	79
60 years and upwards, . .	114	137	108	99
DEATHS FROM—				
Small-pox, . . . . .	...	...	...	...
Measles,	30	21	27	14
Scarlet fever,	2	8	4	2
Diphtheria,	2	1	1	2
Whooping-cough,	3	5	4	7
Enteric fever,	2	...	...	1
Cerebro-spinal fever, . .	2	2	3	3
Diarrhoea (under 2 years of age),	7	6	6	2
Bronchitis, pneumonia, and pleurisy,	98	91	77	81
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Cerebro-spinal meningitis, .	4	5	9	4
Diphtheria and membranous croup,	34	27	36	19
Erysipelas,	16	30	26	23
Scarlet fever,	83	87	89	75
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	1	5	2	...
Phthisis,	62	60	58	33
Puerperal fever,	4	6	2	3
Measles,*	480	419	423	376

* Measles not notifiable.

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ORIGINAL ARTICLES.

THE ETIOLOGY AND TREATMENT OF GASTRIC
ULCER.

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Physician, Outdoor Department, Western Infirmary, Glasgow ; &c.

OF all illnesses that affect mankind, perhaps those that give most trouble to the practitioner of medicine are affections of the *prima via*. This arises partly from the defective teaching in our medical schools, where the student is introduced to illnesses of every description—usually in their later stages—in which the sufferer has become a nuisance to the family practitioner on account of persistent complaints of symptoms which he does not understand, and is sent into hospital after all the known remedies have been tried in a haphazard way, when the practitioner recognises that the full investigation of the case is going to take longer than he has time to spend on it. The consequence is that the student, unless he be a constant attender at the outdoor department of the hospital, where the cases are seen in

their early stages, gets a very erroneous idea of the early signs and symptoms and of the prognosis of the kind of case he is most likely to meet with in general practice. If such a statement be correct of diseases in general, how much more so is it the case in diseases and disorders of the gastro-intestinal tract. Here we have a system which is more often abused than any other organ we possess, and, when the seat of disorder, requires a very thorough, searching, and painstaking examination, both clinical and chemical, which usually takes more time than the busy practitioner has to spend before an accurate diagnosis can be arrived at. And so we find the individual having gastro-intestinal disorders from the time he begins with his infantile diarrhoea till he reaches his maturer years and becomes a chronic dyspeptic, or is finally laid aside with a carcinoma. Only too frequently, while still in his prime, he is forced to come to the conclusion that he is a hopeless case and must go on suffering, when a systematic examination of the patient, with an analysis of the stomach contents, would not only clear up the diagnosis and give mental relief to the worried practitioner, but would point the way to the proper dietetic and medicinal treatment of the patient, and grant him the relief he has been seeking so long.

One of the most common of the gastric disorders, and at the same time most amenable to treatment, is what is known as peptic ulcer. When the condition is got at an early stage, before cicatrisation of the ulcer takes place, proper scientific treatment can often heal the ulcer completely, relieving the patient of the pain and discomfort, and often preventing his requiring to undergo the risk of surgical treatment, which, however successful in some cases, does not always grant the relief he has been promised by the surgeon.

In order successfully to treat the condition one must have a proper knowledge of all the etiological factors in the case, as well as a minute and accurate knowledge of the chemistry of the digestion in each particular case. No hard and fast line of treatment can be put down for all cases, but each case must be examined and considered on its own merits, and treated according to what is found out by the analysis, as well as by therapeutically opposing all the symptoms complained of.

Etiology.—The ideal treatment of gastric ulcer, as in any other disease, would be to remove the cause of the trouble; so to know this would be a very important advance in the therapeutic treatment. Unfortunately, however, workers on the subject are not all quite at one regarding the various factors set forth as the cause. Most, however, now agree on one point, namely, that the direct cause of an acquired ulcer is a digestion of the stomach itself, or an auto-digestion, which led to the name “*ulcus pepticum*.” But the question which naturally arises in one’s mind is—Why does this auto-digestion appear in some people while in all healthy men the stomach is protected against this digestive influence of its secretion? The recent research on the subject allows us to state that it is not a particular factor which is responsible for this pathological disposition of the gastric secretion, but a combination of several factors, which act conjointly, and will presently be discussed. Ewald suggested that there is a pathological disharmony between the nature of the gastric juice and the nourishment of the gastric mucous membrane which is responsible for this auto-digestion. But this only leads us to enquire whether or not in gastric ulcer we have to deal with a gastric juice stronger in its digestive power.

In 1852 Gunsberg stated that there is an increased formation of HCl in gastric ulcer; Leube and Riegel laid much stress, as an etiological factor, on the increased amount of HCl they found; and many observers since have done the same. Not only clinically but also experimentally has this factor been brought into prominence, as Matthes and others proved that when a gastric ulcer was artificially produced in animals it always healed with surprising rapidity, even when it was large and deep, but that the healing was very materially delayed when hyperchloridria was simultaneously produced in the animals. But clinically after an Ewald test breakfast one does not always find hyperchloridria in cases which are frankly gastric ulcers. Statistics on this point vary somewhat, and one must admit that statistics are not absolutely to be relied on, as mistaken diagnoses might be made and included as gastric ulcer.

I found hyperchloridria in 65 per cent of my cases, and normal in 35 per cent; Ewald found hyperchloridria in 34.1 per cent of

his cases, normal in 56·8 per cent, and subacid in 9 per cent; Schneider found hyperchloridria in 18·19 per cent; Wirsing found hyperchloridria in 42·7 per cent; and Köhler found as many as 34·7 per cent without acid. He, however, found just as many with lactic acid, and so must have been dealing with benign or already advanced malignant degeneration. We can therefore say that hyperacidity is a frequent but by no means a constant symptom of gastric ulcer.

Now, we have to consider if this hyperchloridria represents a qualitative change in the gastric juice. Pavlov and his assistants have demonstrated beyond question that the gastric juice of the dog possesses a constant acidity which is only more or less neutralised by the more or less mixing with mucus. Riegel tried to prove the same for man, but, on account of the Pavlov experiment being impossible in man (as he and others had to work on patients who accidentally—mostly on account of œsophageal stenosis—had stomach fistulæ), the results obtained were not free from objection. There is, however, a great possibility that there is also in man a greater quantitative than qualitative change in the gastric juice which simulates the various degrees of acidity of the stomach contents. Thus, Rubow has drawn our attention to the fact that we have in gastric ulcer not to deal with the hyperacidity of Riegel but with the hypersecretion described by Jaworski and Korezynski. [The differentiation of the strong acidity of the stomach contents (120 to 300 c.c.), and the scanty strong acid (10 to 60 c.c.), reported by Rubow does not appear practical. The former has the importance of hypersecretion, and is also important diagnostically for ulcer, while the latter can be caused by hypermotility, and has not necessarily anything to do with the disturbance of secretion.]

The constant flow of gastric juice—gastrosuccorrhœa or, according to Ewald, parasecretion—is also like the hypersecretion which is often encountered in gastric ulcer. Soupault found in twenty-eight cases of gastrosuccorrhœa who were operated on an ulcer in each, and Gluczinski holds this symptom almost pathognomonic of ulcer at the pylorus. Ewald admits the frequency of the symptom in ulcer, but emphasises that the increased flow of gastric juice often comes and goes in a capricious and inconstant way, and may be due in these cases

to nervous irritation. Some authors consider the hyperacidity of the stomach—be it the consequence of hyperchloridria, hypersecretion, or parasecretion—a very important etiological factor, but on the other hand others consider it only an accompanying symptom, and believe it really is to be considered a healing factor, pointing out the increased antiseptic effect of the gastric juice caused by the increased acid contents on the infected ulcer.

Along with the change of acidity of the gastric juice, the other component, the pepsin content, has been remarkably little discussed. This is mainly due to the fact that it is only recently that simple methods have been described of making a quantitative examination of the pepsin. These include the rizin method of Jacoby and the edestin method of Fuld.

All authors are agreed that the HCl content and the pepsin content of the gastric juice are not quite parallel. But while Rzentkowski, Sloms, and others found an extreme rise in the pepsin content of the stomach in a number of ulcer cases examined by them, Wolff and Tomaszewski, using the edestin method, could not confirm this. I have examined the pepsin contents in ten cases of undoubted gastric ulcer, in seven of which I found an increase in the peptic digesting power, and in three no such increase. This material is, however, too small to make a definite statement on, but perhaps later a more definite statement may be forthcoming regarding the relation and importance of the peptic strength of the gastric juice in the origin of gastric ulcer.

As a summary we may therefore say that in gastric ulcer a change in the gastric juice in the nature of an increased digestive power is a frequent symptom, and its importance as a weighty diagnostic proof must not be denied; but it is by no means a constant symptom, although its presence, taken in conjunction with other etiological factors, is of importance.

In connection with the greater power of digestion of the gastric juice we must consider whether or not there be a decreased resistance in the digested object, namely, the mucous membrane of the stomach. The decrease of the normal resistance is a necessary supposition when we hold the old Hunterian axiom that every living product is protected

against auto-digestion. At one time the axiom appeared to be shaken by the experiments of Claude Bernard, who saw the living thigh of a frog being digested in the stomach of a dog. But Neuman proved that death of the cells preceded the digestion, and so the axiom stood justified. Katzenstein holds that the capacity of resistance against digestion is not present in the tissues in general, but that the stomach and duodenum alone possess it, as a process of adaptability, because these two organs alone are exposed under normal conditions to the possibility of auto-digestion. Accordingly a partial decay or a local necrosis is to be first of all looked for where this decreased resistance is present. One would, therefore, naturally first of all look for a trauma as the forerunner of this local necrosis, and, indeed, many authors have put this forward as an important etiological factor. But important observations have been made which discountenance this as an etiological factor. Thus Wolff reports a case where a man had swallowed over thirty blades of knives, and in the *post-mortem* not a single ulcer was discovered; and Kemp in his book on *Diseases of the Stomach and Intestine* quotes a case reported by Vandivert and Mills from State Hospital No. 2, St. Joseph's, Missouri, as follows:—"This patient died apparently of nephritis, and there was no suspicion of gastric trouble till autopsy. The mass of foreign material lay in the sacculated portion, leaving a narrow channel along the lesser curvature for the passage of food. There was an atrophy of the mucous membrane, much formation of connective tissue, erosions, and the points of some of the foreign bodies had penetrated the stomach wall, but adhering omentum prevented leakage. There were some small walled-in abscesses. The appetite remained good until some two weeks before death, and no symptoms pointed to the stomach. In all 1,446 objects were found in the stomach." These included coins, buttons, screws, bolts, needles, stones, pins, glasses, &c., yet no ulcer was present. Experiments on animals have produced negative results. Thus Pavy excised from the stomach large portions of mucous membrane, and invariably found smooth union at the edges of the wound. Matthes, however, succeeded in producing an ulcer by holding the edges of the wound apart by means of a glass ring which he stitched to the edges of the wound, and allowing the parasitic stomach

juice to act on the open wound. Clinical observations agree with this difficulty in producing an ulcer by trauma. Thus it is not uncommon, as I found, in using a strong stomach pump accidentally to remove portions of the gastric mucous membrane, yet in no case has an ulcer followed. Ewald says that only when the cause of the disease produces the trauma, and immediately after the injury stomach hæmorrhage follows thereon, do typical stomach complaints ensue.

Necrosis can, on the other hand, be caused by local disturbances of the circulation, as Virchow pointed out in 1853, and experimentally the connection has been proved. Thus, Cohnheim produced an ulcer by forming emboli by means of chrome lead, and Müller by blocking the entering artery as well as the larger veins in the stomach. Then, too, the nervous system can produce a disturbance of the circulation of the stomach, as was shown by Van Yzeren, who cut the vagus below the diaphragm, and Dalla Vedova, who injured the celiac plexus and produced ulcers. Van Yzeren drew attention to pyloric spasm, which he said compressed the vessels, and thus an ulcer was liable to form, but Ewald indicated that this was probably more the result than the cause of the ulcer. The appearance of the ulcer, which resembles a cone with the apex at the serous membrane, points to a connection between it and the tree-like branching of the gastric blood-vessels, and bacteria, more by their mechanical than their toxic effect, can cause such embolic necrosis, thus producing the predisposition to an ulcer. But why is it that such pathological ulcers are so seldom formed, and why do they heal so slowly when artificially produced ulcers heal so quickly, unless there are certain protective remedies normally present which are absent in those pathological ulcer cases?

It is found that such protective remedies are present, and are of both a local and a general kind. The covering of the defect is generally done by the mucosa, which folds over it and thus protects it, and this is why the most common site of the ulcer (on the smaller curvature near the pylorus) is just at that place where the least folding of the mucous membrane takes place, *i.e.*, a necrosis, injury, hæmorrhage, and so on, could not at that site be so completely covered by the protecting secreting surface of the epithelium.

Kaufmann lays more stress upon the secreted mucus than on the breach of continuity of the mucous membrane in the formation of the ulcer, as he looks upon the secreted mucin as a great protection against auto-digestion. Where it is deficient he considers that the mucosa then becomes sensitive to juice of normal or even subnormal acid content, this sensitiveness predisposing to the formation of an ulcer, and he points out the regular appearance of a mucous catarrh in the process of healing. This is of great importance, as I hope to point out later, in the treatment of the condition, and it is at the pylorus where there are few or no rugæ that the lack of mucus would be most felt, as in the folds of the rugæ what little mucus was present would be kept, and the pyloric portion of the mucosa left exposed. So much for the local means of protection. Regarding the general means, there is found to be present normally in the blood and gastric juice an anti ferment, the so-called antipepsin, the lack of which favours the formation of gastric ulcer.

Weinland pointed out that worms living parasitically in the animal stomach are protected against the effect of the gastric juices, and he succeeded by rubbing the worms with sand and precipitating with alcohol in isolating a substance—the anti ferment—which prevents the peptic digestion. Blum and Fuld found that this anti ferment is thermostable; when, therefore, a gastric juice is boiled the peptic effect is at once destroyed, and therefore the antipeptic effect alone comes into consideration.

Wolff and Hirsch made experiments about the presence of antipepsin in the stomach juice with the Fuld edestin test. They started the digestion in the usual way for the edestin test, using in the first series of tests the boiled stomach juice, and in the second or control tests the same stomach juice which had not been previously boiled. They found that the boiled juice had a hindering or blocking influence on the edestin test. That this blocking effect was really a characteristic of the gastric juice itself, as Blum and Fuld had already concluded theoretically, and not due to the products of digestion or salts which were dissolved in it, they were able to prove, by putting on instead of gastric juice the boiled filtrate of a test breakfast which was chewed and mixed up with mucus, and put into

the incubator with pepsin and HCl for one hour. By doing this no trace of a blocking effect towards the control test was procured, although the products of digestion and salts would be almost the same as in the pumped-out stomach contents. Whether, therefore, this effect of stopping the digestion be dependent on certain ingredients, for instance the mucin, or represent a special antiferment—antipepsin—at anyrate it is a product of the secretion of the stomach glands, and is not due to the residual food present in the pumped-out stomach contents. They also found, as did Blum and Fuld, that the antiseptic effects differ in the various juices, and the question as to whether we have in ulcer patients to deal with a diminished antipeptic content of the gastric juice, as might *a priori* be supposed, had to be considered. Their experiments proved that it was not so, as they examined a series of ulcer cases in various stages of illness, and found the blocking effect on the average as high in them as in cases where an ulcer could be definitely excluded.

The general means, however, that the organism possesses of protecting itself against auto-digestion must be looked for in the circulating blood. Pavy thinks that the protecting influence of the blood is due to its alkalinity. He supposes that the HCl of the stomach juice, as soon as it penetrates into the depths of the mucosa, becomes neutralised by the alkaline blood which bathes it; and in favour of this view one could mention that in the blood of chlorotic patients, in whom gastric ulcer is particularly common, an enfeebled alkalinity is found. Now, however, this alkaline theory is looked on with disfavour, and is practically cast aside, as Samuelson has shown that if we mix the blood of the animal we are experimenting with with acid the stomach remains intact and no ulcer occurs. Riegel has stated that so long as the stomach receives a normal amount of food, and is penetrated in a right proportion with blood, it will not be self-digested. Thus we are in a better position to understand the influence of chlorosis in the origin of gastric ulcer, and its delay in healing. Dogs have been made anæmic by rapid bleeding and by injection of blood destroying agents, and artificially produced ulcers formed, and these were found to heal with considerably more difficulty than in the previously sound animals. So in chlorosis it is the

poor state of the blood plus the deficiency in the hæmoglobin content which has the deleterious effect.

It may not be out of place here to note that, since the Factory Act came into operation, enforcing the proper ventilating and lighting of the factories, the provision of a sufficient cubic air space for each individual, and attention to proper hygienic means and lavatory accommodation; since the Health Committee of the city has seen to the proper disposal of the sewage, producing a marked improvement in the condition of the Clyde: since the general hygienic condition of our city has been raised to its present high level; and also, since the destructors have been built—chlorosis, which at one time was a particularly common illness in Glasgow, is now very seldom met with. Yet gastric ulcer is as common as ever.

Bad ventilation and unhygienic conditions in general, which have the effect of producing anæmia and an unhealthy state of the blood, also predispose to the formation of an ulcer. Thus, a young lieutenant, aged 21 years, after spending a fortnight in burying the bodies which had been decomposing between the trenches for some very considerable time, complained of pain in the left iliac region. He was sent to an Officers' Home in London, where he was examined and operated on for appendicitis, and was dismissed "cured." The pains, however, still persisted, and as he felt no better he was sent to see me. I examined him on 4th December, 1915, found the free HCl 0.286 per cent, total acidity 0.354 per cent, and occult blood present both in the stomach contents and the fæces. He spent a month in the nursing home, and was dismissed well—pains gone, free HCl 0.13 per cent, total acidity 0.216 per cent, occult blood negative both in the stomach contents and in the fæces. He put on a stone in weight, and has remained well since.

For a long time the close connection between chlorosis and gastric ulcer has been pointed out, but whether the two diseases go hand in hand, or which is the cause and which the sequel, is not yet altogether clear. Hoeslin asserts that in the majority of cases the chlorosis is based on the previous gastric or intestinal hæmorrhage, while others hold, and produce statistics to prove their contention, that the gastric ulcers in most cases are secondary to the chlorosis.

As the frequency of hyperchloridria in gastric ulcer has already been pointed out, it is necessary to see whether there be any connection between chlorosis and hyperacidity. Most investigators report that in the majority of cases of chlorosis a well-marked hyperacidity is found, and this certainly helps to emphasise the importance of chlorosis in cases of gastric ulcer.

Besides its alkalinity, and its capacity as a nourishing fluid, the blood possesses a specific protection against auto-digestion in the shape of a specific antibody in the serum—the anti-pepsin—whose occurrence in the gastric juice has already been pointed out. Wolff and Hirsch tried experimentally to prove the anti-peptic capacity of the blood serum. But on account of not being able to employ the edestin method, as it presupposes a constant percentage of HCl in the digesting tubes, which was upset with adding varying amounts of the alkaline blood, they resolved to estimate the antitriptic power of the blood serum, in the supposition (which is not yet proved) that the anti-peptic and antitriptic effect would go hand in hand. They used the Fuld method, in which a dilution of casein is digested by pancreatin, and at the end of the digestive period the casein which remained undigested was precipitated with acetic acid. They found that the antitriptic content of the blood varied in different cases, but they could not convince themselves that there was a lack of antitripsin in gastric ulcer cases: and, still assuming that the anti-peptic and antitriptic content of the blood went hand in hand, they were therefore forced to admit that they could not find a lack of anti-peptic ferment in the blood of gastric ulcer patients.

Constipation is a common complaint in cases of gastric ulcer, and also in cases of simple hyperacidity without any ulcer, and it has been suggested that the constipation produces an auto-intoxication which poisons the system and produces the hyperacidity and gastric ulcer. But therapeutic evidence is against this view, as if we try to treat the constipation with laxatives or purgatives we do not cure the hyperacidity, whereas treating the hyperacidity cures the constipation without any purgatives, so that it is more likely that the constipation is the result of and not the cause of the hyperacidity. Sir Andrew Clark, in his theory of the etiology of

chlorosis, seems to have overlooked this fact; and the fact that diarrhœa is very common in achylia patients, and is only cured by large doses (say 40 minims) of dilute HCl, speaks strongly in its favour.

Up till now we have illustrated the importance of hyperacidity, local disturbance of the circulation, chlorosis and necrosis of the mucous membrane, as well as the lack of the normal means of protection of the organ against auto-digestion. Not all authors agree with this, as they point out, and insist on it, that the ulcers are really due to microbes, and Neuman insists on the microbic origin of gastric ulcer. Undoubtedly one must admit that micro-organisms play a certain rôle, as in a great many cases one must be struck with the large percentage who have defective teeth, pyorrhœa alveolaris, or an unhealthy condition of the mouth, throat, and naso-pharynx in general. It is, however, exceedingly difficult to give each factor its proper place of importance, because we cannot say whether the well-known mushroom-like growth found is the cause of the ulcer or is only due to organisms which have settled on its base. And again, the bad teeth do affect mastication, and the food being mixed with micro-organisms and being badly masticated as well, might cause a nervous upset to the stomach, producing hyperacidity and local changes in the circulation. Being absorbed in a pre-digested condition, it might also act as a poison, producing the anæmia and general lack of vitality which might ultimately end in an ulcer.

The chronic infections, tubercle and syphilis, also play a certain rôle in some cases. Syphilitic ulcers are sometimes found along with other signs of secondary syphilis, and have disappeared under anti-syphilitic treatment, but tubercular ulcers are very uncommon. Eisenhart only found 1 tubercular ulcer in 567 cases of intestinal tuberculosis, but it is said to be somewhat more common in children.

Age and sex must also be considered in the etiology of the disease. Gastric ulcer is, above all, a disease of early adult life. Although it is occasionally observed in cases a little older, it is undoubtedly in early adult life that we find the most cases. Ewald reckons the most common age is from the twentieth to the thirtieth year. It is usually found earlier in the female than in the male, not infrequently being got in a young girl of

from 16 to 20 years, while it is not uncommon in the male between the years of 20 and 40.

Boni has observed the relative frequency of gastric ulcer during the climacteric period, and tried to explain it by the circulatory disturbance so common at that period. Other observers have not confirmed this, but recently I have had three cases of gastric ulcer in women of from 45 to 50 years of age. Gastric ulcers are rare in the very old or very young. On the whole, I think we can say that the disease attacks women more frequently than men. Whether the wearing of corsets, the more frequent occurrence of enteroptosis, the condition of chlorosis, or the changes in the abdominal organs at menstruation causes the larger proportion in women is not quite clear.

We have now exhausted the theories of the origin of gastric ulcer, and to summarise let me again draw your attention to—

1. The auto-digestion theory, with (*a*) hyperacidity, (*b*) chlorosis, (*c*) trauma, (*d*) lack of anti-ferment, (*e*) lack of mucus, and (*f*) necrotic places.

2. The microbic theory, with (*a*) defective teeth, (*b*) pyorrhœa alveolaris, (*c*) unhealthy conditions of the mouth and nasopharynx, and (*d*) chronic infections such as tubercle and syphilis.

We have not been able to lay a finger on a particular factor and say "that is the cause," but are of the opinion that no particular factor alone produces this condition, but a combination of most or of all; and, hence, in each particular case we are investigating it is essential to make a thorough search for all the factors present, and so far as lies in our power to take them into consideration when treating a case of gastric ulcer.

(To be continued.)

RUPTURE OF A PREGNANT DIVERTICULUM OF
THE UTERUS.

By ARCHD. N. McLELLAN, M.B., C.M.,
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THE case about to be described has given rise to much difficulty in its interpretation. On a casual glance the most probable explanation was that the specimen represented a pregnancy in one half of a bicornuate uterus or in the intra-mural portion of the Fallopian tube. But this explanation was put out of question by the fact that the pregnant sac was perfectly smooth and uniform on its surface, except at one point, where it was united by a thick, fleshy pedicle to the lower part of the body of the uterus in front; that it had no attachment to tube or ovary; and that an apparently normal uterus, with normal adnexa, lay behind it. The writer has therefore come to the conclusion that he is dealing with a pregnancy in a diverticulum of the uterus, although he can find no record of any similar case nor any developmental explanation.

The patient who was the subject of the above condition was a young married woman, 23 years of age, who had had two children and one miscarriage. She was admitted to the Victoria Infirmary on 24th May, 1911, in a state of collapse. For over five months before the date of admission her menstrual periods had been in abeyance, and she believed herself to be pregnant.

For fourteen days before admission she had felt occasional sharp pains in the left iliac region. On the evening of the day of admission she was seized with a sudden severe pain in the left side, as if she had received a blow; this was followed by collapse. The patient was sent at once to hospital, where I saw her about 10 P.M. She then had all the signs of internal hæmorrhage, and looked extremely ill. No detailed examination was made on account of the patient's precarious condition; but the outlines of a fœtus could easily be made out lying immediately beneath the anterior abdominal wall.

An hour later the abdomen was opened by a subumbilical median incision. Its cavity was full of blood, partly fluid, partly clotted; and a foetus of about six months could be felt lying free in it. The cord was ligatured and the foetus removed.

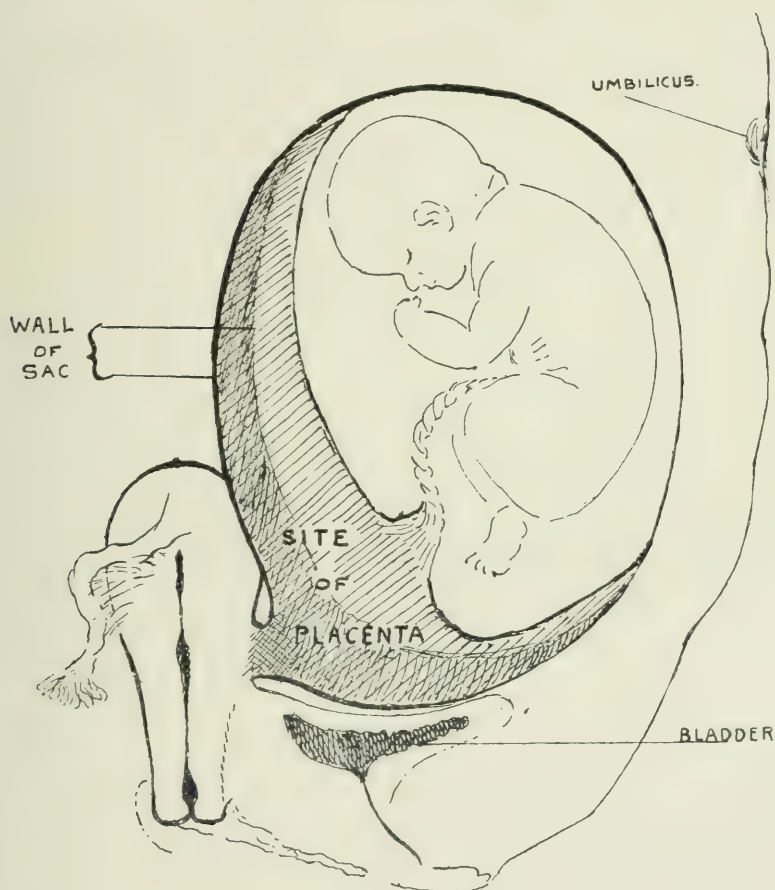


FIG. 1.

Pregnant sac (unruptured), showing its relation to uterus.

After the blood had been mopped up the cord was traced to the placenta, which projected to the extent of half its volume from a muscular sac. Posteriorly, and near its lower border, the sac was attached by a fleshy pedicle, about the thickness

of the thumb, to the front of the uterus a little above the level of the bladder. The relations of the sac to the uterus are shown in Fig. 1 (p. 391). The pedicle was tied and the sac was removed. A slightly enlarged and softened uterus, with normally situated tubes and ovaries, was then revealed. There was no indication of a duplex or bicornuate condition of the uterus. As the patient was in a very collapsed state, an

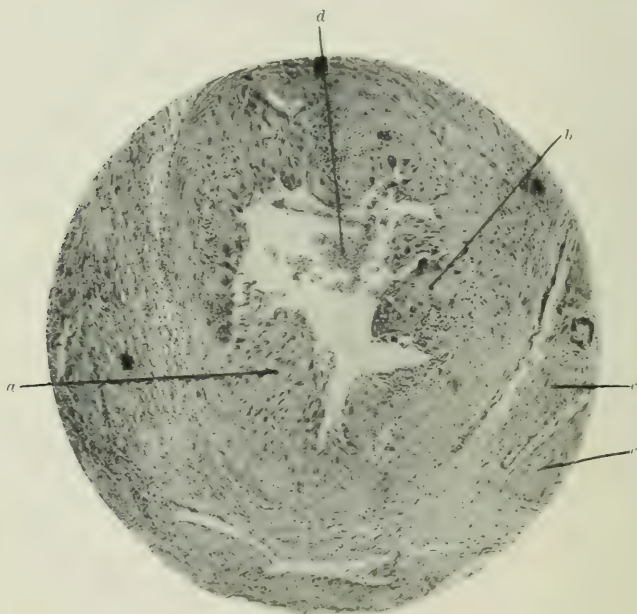


FIG. 2.

Gland of pregnancy (Opitz-Gebhard). (a) Glandular epithelium (normal); (b) glandular epithelium which has undergone hyaline (fibrinoid) change; (c) muscle bundles; (d) contents of lumen (blood).

intravenous saline transfusion was given on the operating table. She made an easy recovery, and was dismissed well on 10th June, 1911. She is now in good health, and has recently passed through a normal pregnancy and confinement.

Description of specimen.—The sac is ovoid in shape, with its long axis vertical. Its measurements, with the placenta *in situ*, are 4 inches by $2\frac{3}{4}$ inches by $3\frac{3}{4}$ inches. The pedicle,

which was about 1 inch thick and three-quarters of an inch long, was attached towards the lower pole of the sac. Its other attachment was to the corpus uteri, above the level where the peritoneum is reflected from the uterus to the bladder (Fig. 1, p. 391).

The wall of the sac (Fig. 1, p. 391) is thickest at the point of attachment of the pedicle; here it measures 1 inch. It rapidly becomes thinner anteriorly until, at its torn edge, it is membranous. The placenta is attached to its thick posterior wall

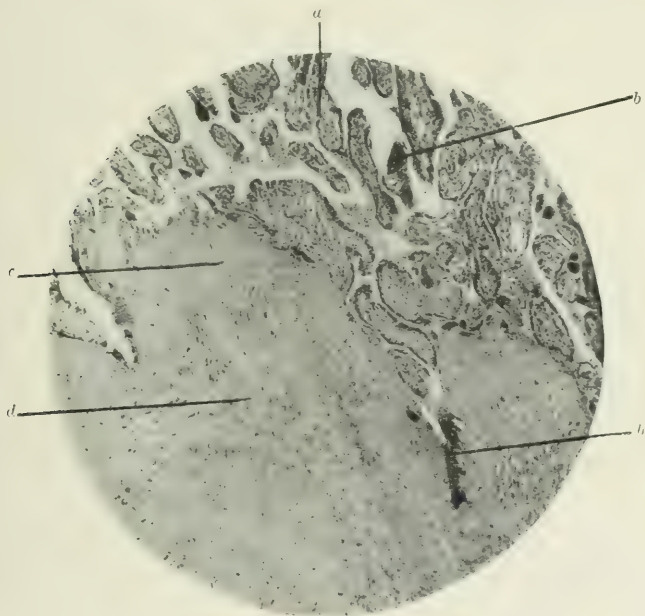


FIG. 3.

Junction of sac wall and placenta. (a) Villus; (b) syncytium; (c) fibrinoid tissue; (d) decidual cells.

(Fig. 1, p. 391), and projects to the extent of about half its bulk through the tear in its anterior wall. Careful search was made for a channel of communication which might lead from the interior of the sac to that of the uterus, but none was found, though at one part it appeared not improbable that such a channel had existed, but had become blocked up by decidua. The size of the fetus corresponds with the duration of amenorrhœa (five to six months).

Blocks of tissue were taken from various parts of the sac wall, and sections of them were cut. The most interesting sections are from the thickest part with the attached placenta.

From the above description it is evident that the pregnancy here described must have occurred within a true diverticulum of the uterine cavity. The attachment of the pedicle to the uterus was noted quite definitely at the time of operation, as also were the body of the uterus and the right and left Fallopian tubes. It might be suggested that, in this case, the ovum, during implantation, had eaten its way right through the uterine wall, so as to become subperitoneal instead of subcapsular in position. This view is put out of count, however, in my opinion, by the presence under the placenta of the perfectly typical glands of pregnancy referred to under description of Fig. 2 (p. 392). Instances of diverticula of the uterus do not seem to have been previously put on record, and there seems to be no developmental explanation of their occurrence—at anyrate, in the position of the one described in this paper.

A section through the thickest part of the sac wall and the placenta showed the following structures:—

1. Chorionic villi (Fig. 3, p. 393).

2. Decidual tissue (Fig. 3, p. 393).

3. Involuntary muscular tissue, which contains glands of pregnancy (Fig. 2, p. 392).

1. The *villi* enclose a somewhat fibrous stroma, and are surrounded by a well-defined syncytial layer. No Langhans' cells are visible (Fig. 3, p. 393).

2. *Decidual tissue*.—This is present wherever the villi come in contact with the sac wall. In some places the decidual cells lie immediately under the villi: but, for the most part, they are separated from the latter by a layer of homogeneous (hyaline) tissue. The decidual cells consist of a nucleus surrounded by a blurred cell-body. In some cases the cell membrane is distinct; in others, it is not. Here and there the nucleus seems to lie in the centre of an empty space (Fig. 3, p. 393).

3. *Muscular layer*.—The muscle bundles are very coarse in character, becoming more so the nearer they approach the peritoneal surface. In the latter region they resemble striped

muscle. The glands (Fig. 2, p. 392) are few in number, and lie mostly between the muscle bundles. One of the most typical is shown in Fig. 2 (p. 392). Its epithelial lining forms projections into the lumen of the gland. In the left lower quadrant the epithelial cells are normal in appearance, and are clearly defined from one another. Elsewhere the cell protoplasm and cell membrane have disappeared, and all that is left is a homogeneous mass studded with nuclei. In some glands the whole of the epithelial lining has undergone this degenerative change. In none of them is epithelial degeneration entirely absent.

I have to acknowledge my indebtedness to Dr. J. F. Gemmill, Lecturer on Embryology at the University of Glasgow, for the opportunity of doing the work in connection with this paper in his laboratory.

A SERIES OF 800 CASES WITH THE VERNON
HARCOURT CHLOROFORM INHALER.

By H. P. FAIRLIE, M.D.,

Anæsthetist to the Royal Infirmary, the Western Infirmary, and the
Royal Hospital for Sick Children, Glasgow.

THE frequency of anæsthetic difficulties, and even of fatalities, occurring during the administration of chloroform by the ordinary methods, where the anæsthetic is sprinkled on a towel or on an absorbent material stretched on a metal framework, leads me to bring up the question—Do we adhere too rigidly to these methods? They possess undoubtedly the great advantages of convenience and simplicity, requiring, as they do, very little apparatus, and that easily portable. But they possess the great disadvantage of being very dangerous. So firmly am I convinced of this that I now make a point of impressing students with the advisability of becoming familiar with the use of open ether, in the belief that the anæsthetic mortality will thereby be considerably reduced. The average practitioner has not frequent enough opportunities of administering anæsthetics to gain the experience necessary to guard against chloroform dangers. And again, for the class of operations for which he is mostly called upon to give anæsthetics, viz., those of minor surgery, and less serious cases generally, open ether makes an admirable anæsthetic and one requiring no elaborate apparatus.

While putting forward this view I still hold, in accordance with a former contribution,¹ that chloroform anæsthesia has a very important field. At the same time, given by the ordinary methods, its administration, even in skilled hands, is always fraught with danger. A committee appointed in 1901 by the British Medical Association to inquire into the subject came to the conclusion that chloroform dangers and fatalities arose from the use of too high a concentration of chloroform vapour in the air breathed by the patient.² It has been shown that, in giving chloroform by the ordinary

methods, this concentration may easily rise to 4 per cent or even higher, and that such concentrations cannot be used without danger.³ Many forms of apparatus have been invented to overcome this objection, all of which aim at the administration of definite percentages of chloroform vapour in air or oxygen. The following three are types:—

1. The Roth-Drager apparatus, which I have never seen. Judging from descriptions and diagrams of it, it suffers from two serious drawbacks—(a) it does not sufficiently limit the chloroform percentage, and (b) it is exceedingly cumbersome and complicated, and, not being portable, is suited only for hospital use.

2. The Dubois apparatus. This again is equally open to the latter objection.

3. The Vernon Harcourt apparatus. This, in my opinion, comes nearer to the ideal chloroform apparatus than any other yet invented, and the principal object of this paper is to advocate its more frequent employment.

Mr. A. Vernon Harcourt, the inventor, was a member of the Special Chloroform Committee already referred to, and his object in inventing the inhaler was to comply with the finding of this Committee, viz., to administer a maximum delivery of 2 per cent chloroform vapour in air (a later modification of the apparatus allowed for 2·5 per cent vapour).⁴

The apparatus is illustrated in the accompanying illustrations (Fig. 1, p. 398). It consists of a face-piece **F**, round the margin of which is a pneumatic pad, which enables it to be accurately adapted to the patient's face, preventing the ingress and egress of air round this margin. The face-piece possesses two openings, the first, **E**, being controlled by a valve permitting only of expiration, the second, **G**, communicating with and controlled by two inspiratory valves, **B** and **C**, permitting only of inspiration. The chloroform is contained in the bottle, **A**, which has two necks, one opening direct to the atmosphere, the other connected by a rubber tube to the inspiratory valve, **B**. The two inspiratory valves, **B** and **C**, are controlled by the pointer, **D**. When this pointer is in position **H** the patient gets 2 per cent of chloroform in air (Fig. 3, p. 399), when in position **I** pure air only is admitted, while with the pointer in intermediate positions varying percentages

of chloroform up to 2 per cent may be given (as in Fig. 2, 1·4 per cent). In the chloroform bottle are two coloured beads, one red and the other blue, for the purpose of indicating the temperature of the chloroform. The accuracy of the inhaler depends on the chloroform being at temperatures of from 13° to 15° C., and within this range the red bead floats and the blue bead sinks in the chloroform. When the apparatus is in use the chloroform constantly loses heat from evaporation, and as a result the blue bead floats to the surface. On this

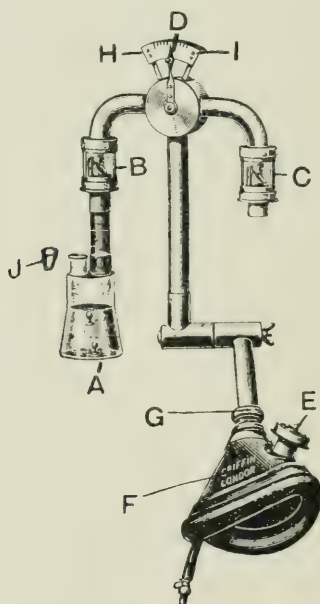


FIG. 1.

occurring the chloroform must be warmed, and this may easily be effected by immersing the bottle in hot water. In order to increase the percentage to 2·5 a small bevelled tube, *J*, is supplied, which fits into the open neck of the chloroform bottle. It narrows the air inlet, throwing the air current more down on the surface of the chloroform, and so increasing the amount of chloroform taken up by 0·5 per cent.

Mr. Vernon Harcourt has described very fully all the points in connection with his apparatus, showing how it has been

constructed to deliver a definite, known percentage of chloroform vapour, irrespective of the rate of respiration, the volume of respired air, and other variable factors.⁵

One other point regarding the instrument itself must be referred to, viz., the matter of its support. In Fig. 1 (p. 398) the inhaler is shown complete in one piece, and while it gains in this form in point of portability it loses in point of convenience during its employment. It is clumsy and heavy to support on the patient's face, and the combined effort of keeping it in position and the patient's jaw forward imposes a considerable strain on the anæsthetist. I think that most of those who use

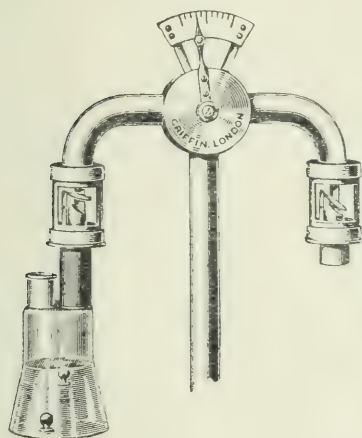


FIG. 2.

Pointer adjusted to give 1·4 per cent.

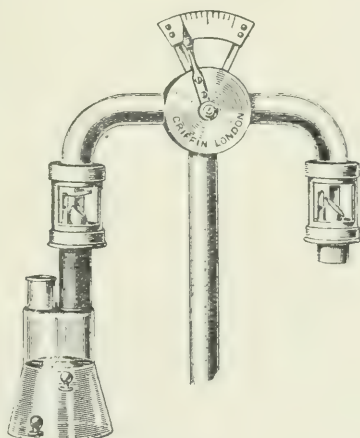


FIG. 3.

Pointer adjusted to give 2 per cent.

it frequently adopt some support for the main part of the apparatus, connecting this to the face-piece by means of a wide-bore flexible tube. Fig. 4 (p. 400) shows one method of supporting it, viz., by attaching it to the anæsthetist. This method does not commend itself to me. For one reason the chloroform bottle should be kept as steady as possible, and this makes the wearing of the apparatus suspended from the neck somewhat irksome. Various forms of stands have been used. One of them is shown in Fig. 5 (p. 401). It will be seen that it combines with support a means of heating the chloroform. It is open to the objection that it is not portable, being suited only for hospital use. The stand which I prefer is one which was made for

Hewitt's nitrous oxide-oxygen apparatus. It has been slightly modified to adapt it for the Vernon Harcourt apparatus. It consists of four separate pieces, none of them bulky. The whole apparatus with this stand may be carried in a bag 16 inches by 7 inches by 7 inches. Fig. 6 (p. 402) illustrates the stand supporting the apparatus in position.



FIG. 4.

When using the apparatus the face-piece is adjusted carefully to the patient's face with the pointer in position **I** (Fig. 1, p. 398). Air is admitted through the inspiratory valve **C** through the tube to the face-piece: the expired air passes out through the valve **E**. After a few breaths in this position, to allow the patient to become accustomed to the sensation, the pointer is very slowly and steadily moved over to position **H**, all the

inspired air then coming through the valve **B** over the surface of the chloroform, of the vapour of which 2 per cent is then taken up. This should take about three minutes, and then the tube **J** is inserted into the neck of the bottle, increasing to 2·5 per cent. This should be maintained till anæsthesia is well established, and, in abdominal surgery, till the muscles are well



FIG. 5.

relaxed. In some cases I find it necessary to continue at that percentage for even thirty minutes or longer. In the majority of cases, however, it is possible to reduce the percentage after induction to 2, 1·8, or even lower; while in children under 10 years of age, after induction, 1 per cent or less suffices to maintain a deep anæsthesia. It is important to keep the chloroform at the

proper temperature as indicated by the beads, for, if this be neglected, it rapidly cools and the percentage falls below what is indicated. It is also important to keep the chloroform bottle steady and the surface level.

In certain cases it is of great advantage to administer oxygen with chloroform. This object may be achieved by leading a current of warmed oxygen through the open neck of the Vernon Harcourt bottle by means of a small-bore glass tube

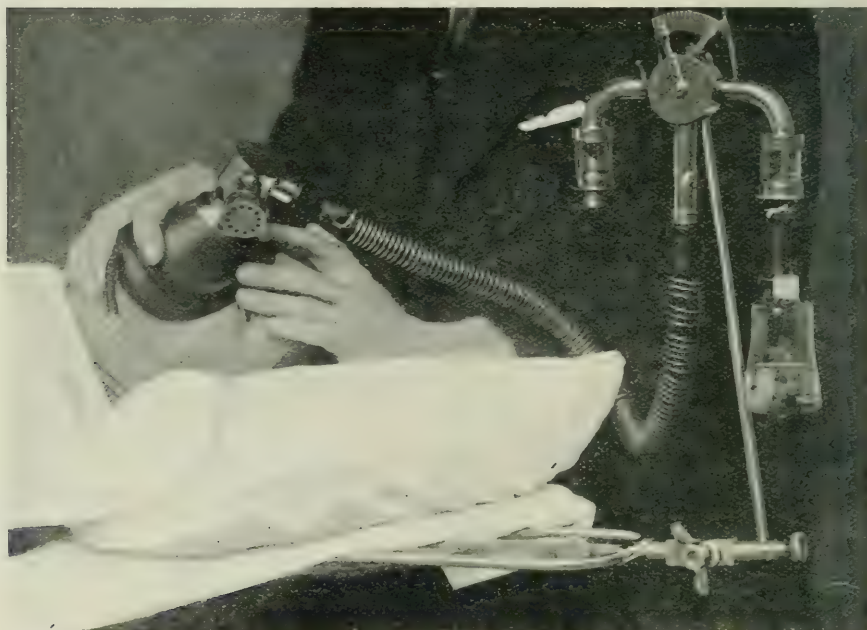


FIG. 6.

(4 mm. diameter), the end of this tube being allowed to project just within the neck.

The above will serve as a very brief description of the Vernon Harcourt apparatus and its use. After a little practical experience with it one becomes familiar with the various details. One difficulty which troubled me considerably at first was the maintenance of a free airway. With the pressure involved in the close fitting of a padded face-piece obstruction to the free passage of air to and from the lungs very easily arises. The means which I have found most helpful in avoiding this

difficulty are two—(1) The holding of the lower jaw very well forward, and (2) insertion between the lips and teeth of Hewitt's airway prop (Fig. 7). The first of these precautions I adopt in all cases and the second in the great majority, placing the prop in position after induction of anæsthesia whenever the slightest evidence of obstruction appears. It is rarely necessary to take further measures with regard to the patency of the airway. Occasionally the tongue has to be pulled forward, and in this event the tongue forceps may interfere with the close fitting of the face-piece: but, in the very few cases in which it is necessary, it is usually possible, by pulling the tongue well forward, to get the face-piece satisfactorily adapted.

Any failure in the passage of air to the lungs is quickly evidenced by the imperfect action of the inspiratory valves.

I have now used the inhaler in over 1,000 cases, including



FIG. 7.

patients of all ages from 3 months to 90 years old, and including all kinds of operations, without a fatality. In the earlier cases it was my habit to induce anæsthesia by some other method—by chloroform given on a Schimmelbusch mask, or by ether in the clover inhaler with or without preliminary nitrous oxide or ethyl chloride. Latterly, however, I have been more and more inclined to use the Vernon Harcourt from the beginning, and this, I think, gives the best results. In cases where the patient is anæsthetised in one room and then brought into the operating theatre there is a little difficulty in manipulating the inhaler. In such cases it is perhaps preferable to induce anæsthesia by some other method, and to adopt the Vernon Harcourt when the patient is on the operating table.

Of the last 800 of those cases I have kept detailed notes, from which the following figures are taken:—

In 432 cases the Vernon Harcourt inhaler was used throughout.

In 368 some other method was used for induction and the Vernon Harcourt adopted later.

365 were abdominal sections, and of those—in 215 the Vernon Harcourt was used throughout: in 150 it was adopted after induction.

Circulatory failure requiring remedial measures occurred in 14 cases, *i.e.*, 1.75 per cent. Seven of those were abdominal sections. In explanation of the following figures it is necessary to point out that in treating circulatory failure two measures were adopted—(1) The operating table was tilted with the patient's head lowered and the feet raised, and, if necessary (2), artificial respiration was used. In some cases where the symptoms were less sudden in onset and of a less serious type open ether was substituted temporarily or permanently for chloroform, either as the only remedial measure or along with the tilting of the table.

Of the 14 cases of circulatory failure, in 6 temporary tilting of the table was sufficient, *i.e.*, 0.75 per cent; in 2 artificial respiration was required, *i.e.*, 0.25 per cent: in 5 it was necessary to substitute temporarily open ether, *i.e.*, 0.62 per cent: in 2 chloroform had to be abandoned for open ether, *i.e.*, 0.25 per cent.

In addition to circulatory failure, there are two other difficulties to be considered, *viz.*, (1) respiratory troubles, and (2) insufficient depth of anæsthesia marked by rigidity.

Respiratory difficulties, with congestion and all the accompanying symptoms, such as profuse secretion of mucus, occurred in 8 cases, or 1 per cent. In 4 of these it involved the abandonment of the Vernon Harcourt for another method. Five of the 8 cases were abdominal sections. The principal cause of respiratory trouble was the difficulty of adapting the Vernon Harcourt face-piece without at the same time interfering with the free passage of air to and from the lungs. Attention to the two points already mentioned in the maintenance of a free airway is the chief preventive, and only in this small percentage was this insufficient. It has also been my experience that oxygen administered through the Vernon Harcourt inhaler is of very great value as a preventive of respiratory trouble. I now use it almost as a routine in intra-pelvic operations, as, in this class, with the patient in the Trendelenburg position, the

abdominal viscera falling on the diaphragm, and the consequent hindrance to free lung ventilation, the use of oxygen is very valuable. But it is useful in any case where there is a tendency to cyanosis.

The third difficulty, insufficient depth of anæsthesia, may be an accompaniment of the last. A cyanosed patient is nearly always a rigid one, and the treatment for cyanosis, viz., the use of oxygen, also helps to relax the patient. The condition, then, is marked by rigidity or straining. It occurred in 9 cases of the series (1·12 per cent), all but one of which were laparotomies, the exception being a case of hæmorrhoids, a man of 40 years who drank heavily. It is, of course, a difficulty with which one has to contend, independent of the anæsthetic method used, in all abdominal surgery. It is troublesome, particularly in laparotomies through one of the recti muscles, and generally in laparotomies in the upper half of the abdomen. Of the 8 laparotomies in which it occurred, 3 were gastro-enterostomies, 2 were gall-bladder operations, 2 were appendectomies (1 of which was performed through the right rectus muscle), and 1 was a hysterectomy. In 8 of the 9 cases the Vernon Harcourt inhaler had to be abandoned altogether; in 1, an appendix, after the temporary use of chloroform on a Schimmelbusch mask, it did well. Temporary rigidity has, of course, been present in other cases, but never to a degree which was not overcome by pushing the anæsthetic with the Vernon Harcourt, with or without oxygen.

It will thus be seen that in the series of 800 cases failure of the Vernon Harcourt inhaler from all causes necessitating its abandonment occurred in 14, or 1·75 per cent.

What, then, are the advantages and disadvantages of the inhaler?

Advantages.—Firstly, as compared with other percentage chloroform inhalers, it possesses the great advantages of portability and simplicity. The others are suited only for hospital use, and even then are complicated, requiring two to work them.

Secondly, as compared with ordinary methods of administering chloroform, it is superior in that the dose of anæsthetic is always known and under control, and especially in that it cannot exceed 2·5 per cent, a concentration which considerably

reduces the danger of chloroform. In using the ordinary methods it is very easy to exceed the margin of safe dosage, and, however careful one may be, difficulties are of frequent occurrence. The figures given above with reference to circulatory failure illustrate this point, and in my experience those figures are very much better than any I could give in connection with chloroform administered by other methods.

The most important advantage, then, of the Vernon Harcourt inhaler is its safety during administration. It must also be remembered that by giving the minimum efficient dose it leaves the patient in better condition at the end of the operation.

Other less important advantages are:—(1) It is economical of chloroform, using from one-third to one-half the quantity which would be used during the same time on an open mask, the cost of the apparatus being soon saved in this way: and (2) the expired air is directed away from those concerned with the operation, so that none of them is compelled to inhale chloroform vapour, a point of considerable importance, especially to the anæsthetist.

Disadvantages.—The objection is frequently raised that the method is too complicated for use in general practice. I do not think, however, that this is valid. After a little practice it may be used without difficulty.

Another objection is that it fails to maintain a sufficient depth of anæsthesia, but I think that this has been exaggerated. There is a small number of cases to which it is applicable, represented in the above series by 1·12 per cent. Even then it is not a very serious objection, as another method may easily be substituted.

The late Sir Frederic Hewitt⁶ mentions the following disadvantages:—(1) The current through it depends upon the respiratory action of the patient; (2) the face-piece pressure which is often necessary in order to obtain proper chloroform percentages may seriously interfere with free respiration; (3) it takes a long time to induce anæsthesia; (4) it cannot be used for many operations: and (5) it cannot be readily sterilised.

Considering these in their order:—1. Everything has been done in the construction of the apparatus to minimise this

difficulty: the inspiratory valves are almost equipoised so that the effort required to raise them is very small. The expiratory valve also requires a very small effort. I have personally tested the validity of this objection by breathing through the apparatus, in the absence of chloroform, for considerable periods without experiencing any discomfort.

2. In a very small percentage of cases this is true. It occurred in 1 per cent of my series, and in only half of those was it sufficiently serious to necessitate the substitution of another method. It is greatly reduced by the keeping of the jaw well forward and the insertion of a prop.

3. This was true in the early days of the inhaler when a maximum strength of 2 per cent only was available. With 2.5 per cent the induction period averages eight minutes.

4. Is quite contrary to my experience. The series of 800 cases includes a great variety of operations. They were not picked cases. There is one class of operations to which this objection does apply, viz., those on the mouth and nose, where, of course, it is impossible to use an inhaler which obstructs the surgeon's access to the parts.

5. This also is no serious obstacle. The face-piece and some other parts of the apparatus may be boiled, while the remainder may easily be rendered as aseptic as the inspired air.

Those, then, are the arguments in favour of and against the Vernon Harcourt inhaler. In my opinion the former outweigh the latter. As Dr. Dudley Buxton says⁷:—"The methods most generally employed provide no means by which the administrator can even know the strength of vapour, *i.e.*, the dose per kilo, he is giving, while he possesses no accurate control over the unmeasured and unmeasurable quantities of the drug employed. He is for ever experimenting on his patients, and the results he obtains depend wholly upon his personal acumen as an experimenter. That he must frequently fail is fore-ordained since in the problem which he seeks to unravel are factors of which he can possess no full knowledge. He depends solely upon his powers of observation, if the results consequent upon his unknown doses seem to be trenching upon the zone of danger he limits his supply of chloroform, but by how much he does not accurately know."

By the use of a regulating inhaler the dose can never exceed

a certain maximum; it is always under control and the percentage definitely known. For these reasons the dangers of chloroform anæsthesia are reduced—they can never be entirely abolished. But as well as diminished danger there is another very substantial gain, viz., the patient has had throughout the operation just the requisite dose: whereas, too often during an administration by the ordinary methods, he has had a considerably larger quantity of chloroform than was absolutely necessary. To quote Buxton again⁸:—"The patient who is safely anæsthetised and kept drugged throughout a prolonged operation may be, and often is, seriously prejudiced as to his recovery when an over-large amount of chloroform has been inhaled by him, even though his life has never been in obvious jeopardy during the administration. With dosimetry, if accurate, he will have received the minimal quantity of the drug: at no time will his organism have been unduly depressed." The importance of this point can hardly be over-emphasised. It was one of the first which struck me in using the Vernon Harcourt inhaler, and I feel sure it will similarly appeal to anyone who will give the method a fair trial.

REFERENCES.

- ¹ *Lancet*, 28th February, 1914.
 - ² *Report of British Medical Association Special Chloroform Committee.*
 - ³ Professor Waller, *ibid.*, p. 31.
 - ⁴ *Ibid.*, p. 49.
 - ⁵ *Ibid.*, pp. 80, 120, 138, and 148.
 - ⁶ Hewitt, *Anæsthetics and their Administration*, p. 392.
 - ⁷ *Transactions of the Seventeenth International Congress of Medicine*, Sub-section VIIb, part i, pp. 43 and 44.
 - ⁸ *Ibid.*, p. 44.
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Obituary.

JAMES GILROY, M.B., C.M. GLASG.,
ECCLEFECHAN.

WE regret to announce the death of Mr. James Gilroy, which took place at Ecclefechan on 24th April. Mr. Gilroy, who was 57 years of age, studied medicine at Anderson's College and at the University of Glasgow. He took the licentiateship of the Royal Faculty of Physicians and Surgeons in 1880, and the degrees of M.B., C.M. Glasg. in 1889. After graduation he settled in Ecclefechan, where he held the posts of medical officer and public vaccinator to Middlebie Parish Council, and was also certifying factory surgeon. Engaged as he was in public and private work, he still found time to contribute a considerable number of papers on subjects of clinical interest to the *Lancet* and other medical journals. He was versed in antiquarian and historical lore, and was a member of the Scottish Historical Society. One of his papers, on the legal rights of licentiates of certain Scottish bodies to act as apothecaries in England, is an example of the research and learning which he brought to bear both upon the subjects which engaged his leisure and upon his professional duties.

ALEXANDER BARR POLLOCK, M.B., C.M. GLASG.,
GLASGOW.

WE regret to announce the death of Mr. Alexander Barr Pollock, which occurred at his house in Hillhead on 27th April, after a prolonged illness. Mr. Pollock, who was in his sixty-sixth year, was the youngest son of the late Mr. William Pollock, a partner in the firm of Messrs. R. & J. Cochrane, Wellington and Bishop Street Mills, Tradeston. He pursued his medical studies at the University of Glasgow, where he occupied among his contemporaries a position of more than average distinction, and

where he took the degrees of M.B., C.M. in 1879. The promise which he had already shown was an earnest of the success of his future career. After graduation he held the post of resident physician in the Western Infirmary. For some years he assisted the late Professor Sir George MacLeod and the late Professor George Buchanan, and he was for a time assistant physician to the Hospital for Skin Diseases, where he acquired a special knowledge which afterwards stood him in good stead. This excellent all-round training speedily bore fruit, and when, some thirty-five years ago, he settled in practice in Hillhead, he quickly gained the esteem and friendship of an ever widening circle of patients. Thorough in his investigation, sound in his judgment, and abreast of all the modern scientific methods, he retained throughout his professional career the confidence that he had so early won, and his death will be mourned by very many who will feel the withdrawal of his wise counsel with a sense of personal loss. He is survived by his wife, two daughters, and five sons, of whom two are well-known members of the medical profession.

ALEXANDER CAMPBELL, M.B., C.M. GLASG.,
GOVAN.

WE regret to announce the sudden death of Mr. Alexander Campbell, which took place on 5th May. A son of Mr. Alexander Campbell, Provost of the Burgh of Govan from 1883 to 1886, Mr. Campbell was a student of the University of Glasgow, where he took the degrees of M.B., C.M. in 1891. He had been in practice in Govan for over twenty years, and had gathered around him an extensive *clientèle*, by whom he was as much esteemed and loved for his personal qualities as he was admired for his professional ability.

CURRENT TOPICS.

UNIVERSITY OF GLASGOW: GRADUATION IN MEDICINE.—Two degrees in medicine were conferred at a graduation ceremony in the Bute Hall on 25th April, when degrees in the other Faculties were also given. Principal Sir Donald MacAlister presided and performed the capping ceremony. The following are the medical degrees:—

DOCTOR OF MEDICINE (M.D.)

Dagmar Florence Curjel, M.B., Ch.B.

MASTER OF SURGERY (CH.M.)

WITH HIGH COMMENDATION.

Robert Buchanan Carslaw, M.A., M.B., Ch.B.

The following University prizes were also awarded for medical subjects:—Bellahouston Gold Medal for eminent merit in thesis for M.D.—Matthew Young, M.D.; Struthers Gold Medal and Prize of £20 for research in Anatomy—Matthew Young, M.D.

APPOINTMENTS.—The following appointments have recently been made:—

Royal Navy (6th May): Temporary Surgeon R. Lyon, M.B., Ch.B.Glasg. (1915), to *Pembroke*, additional.

11th May: Temporary Surgeons R. W. Brander, M.B., Ch.B. Glasg. (1914), and W. E. Boyd, M.B., Ch.B.Glasg. (1915), to *Pembroke*, additional for disposal.

Royal Army Medical Corps (17th April): C. S. Young (Captain, R.A.M.C., T.F.), L.F.P.S.Glasg. (1882), to be temporary Major whilst employed at Dundee War Hospital.

20th April: To be temporary Captain—Temporary Lieutenant D. L. Tate, M.B., Ch.B.Glasg. (1906).

27th April: To be temporary Captains—Temporary Lieutenants J. B. Alexander, M.D.Glasg. (M.B., 1911); J. A. Gentle,

M.B., C.M.Glasg. (1889); J. Wylie, M.B., Ch.B.Glasg. (1914); W. Harvey, M.B., Ch.B.Glasg. (1903); R. S. Dewar, M.B., Ch.B. Glasg. (1905); F. S. Campbell, M.D.Glasg. (M.B., 1888); D. M'K. Reid, M.B., Ch.B.Glasg. (1907). To be temporary Lieutenant—A. M. Bayne, M.B., Ch.B. Glasg. (1909).

8th May: To be temporary Lieutenants—E. J. Dyke, M.B., Ch.B.Glasg. (1905); W. S. Allan, M.B., Ch.B.Glasg. (1905).

9th May: To be temporary Captains—Temporary Lieutenants J. Dunbar, M.B., Ch.B.Glasg. (1907); J. R. MacCulloch, M.B., Ch.B.Glasg. (1912); J. Connell, M.B., Ch.B.Glasg. (1913); T. Strain, M.D.Glasg. (M.B., 1906); N. Campbell, M.B., C.M.Glasg. (1891); R. M'C. Service, M.D.Glasg. (M.B., 1884); J. H. Marshall, M.B., Ch.B.Glasg. (1904); J. Rowat, M.D.Glasg. (M.B., 1886); J. J. Robb, M.D.Glasg. (M.B., 1892); J. W. Turner, M.B., Ch.B. Glasg. (1901).

10th May: To be temporary Lieutenants—H. C. Davies, M.B., Ch.B.Glasg. (1903); J. P. Crawford, M.B., Ch.B.Glasg. (1914); G. J. M'Gorty, M.B., Ch.B.Glasg. (1915).

R.A.M.C., Territorial Force (25th April): Lowland Field Ambulance—Lieutenant R. Armstrong, M.B., Ch.B.Glasg. (1914), to be Captain.

5th May: Lowland Field Ambulance—Lieutenant J. Angus, M.B., Ch.B.Glasg. (1912), to be Captain.

WAR HONOURS FOR GLASGOW GRADUATES.—In the *London Gazette* of 2nd May it is announced that the King has been graciously pleased to promote Surgeon-General William Babbie, V.C., C.B., C.M.G., to be a K.C.M.G. The honours already bestowed upon Sir William Babbie, as he now becomes, as the reward of his services in the present war, and his connection with the Glasgow school of medicine, have been referred to in a recent issue.

In the *Gazette* of 17th April it is announced that Major S. Anderson, M.B., I.M.S., has been promoted to be Brevet Lieutenant-Colonel. As was noted in our last issue, Major Anderson was mentioned in Sir John Nixon's despatch dealing with the Mesopotamian campaign.

SOLDIERS' AND SAILORS' FAMILIES ASSOCIATION.—By the sale of his book of poems entitled "The Sodger and other Verses,"

published by Messrs. Gowans and Gray last Christmas, and sold for the benefit of the Soldiers' and Sailors' Families Association, Dr. John Fergus has just handed over to the Association, through its honorary treasurer, the sum of £50 as a first instalment. Those of us who have read and enjoyed Dr. Fergus' recent papers in the *Journal* need no assurance of the racy qualities of his prose, and they will be right in inferring from it that his verse will give them even higher pleasure. He is a master of the vernacular—a bookseller of whom the writer asked how the sales were going even expressed the fear that "the Scotch" might limit them!—and he has the gifts both of a kindly yet penetrating humour and of a pathos natural and unforced. We trust that among the readers of this *Journal* there are few such degenerate Scots as not to feel additionally attracted to the little volume for its expressive use of their mother tongue. It may be specially commended to all who know and love the "G. R. I." for the noble and touching verses in its praise.

EFFECT OF WAR ON CHILD LIFE IN GLASGOW.—At the annual meeting of the Glasgow Society for the Prevention of Cruelty to Children held on 19th April under the presidency of Lord Provost Dunlop, the chairman called attention to the importance of the Society's operations, especially at the present time, when it was most necessary to see that the rising generation got every chance in life, and stated that during the year 1915 no fewer than 2,019 cases of child neglect and cruelty, affecting the welfare of 5,887 children, were dealt with by the officers of the Society. In many cases the warnings given by the inspectors on a first call were taken to heart, improvement followed, and in 75 per cent of the cases the improvement was fairly satisfactorily maintained. He went on to state that even in the work of this Society the influence of the war was seen in a marked degree. Owing to the larger wages received by the working classes and the increased revenue coming into the majority of homes, the condition of children had shown a marked improvement, particularly in the matter of feeding. More money was spent upon food, and the physique of the children consequently showed improvement. That of course referred to the very poorest classes, who in the

past had been living from hand to mouth, but who were now drawing larger wages and whose children were in consequence benefiting. To a less extent the benefit was seen in better clothing. An admirable feature of the work of the Society was the Crookston Home Branch, to which over 180 children were admitted in the course of the year. A pathetic interest attached to those little ones, most of them having either one or both parents in prison, while in some cases the children belonged to soldiers whose wives had been misconducting themselves, and who, at the father's request, were taken charge of by the Society during his absence.

GIFT TO PAISLEY INFIRMARY.—The honorary secretary of Paisley Infirmary has intimated the receipt of a donation of £1,250 from Miss E. D. Coats, Brenchley, Kent, to endow a bed in memory of her parents, the late Mr. and Mrs. Archibald Coats, Woodside, Paisley.

REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.—We have received from the Association for Moral and Social Hygiene a copy of its manifesto on the report of the Royal Commission for Venereal Diseases, with a request for its insertion in our pages. While the manifesto is unfortunately too long for verbatim reproduction in our limited space, its main tenor may be indicated in the following abstract:—Addressing the President of the Local Government Board, the Association congratulates the Commissioners on the thoroughness of their investigation and the wisdom of most of their recommendations, but regrets that the terms of reference precluded an examination of the social causes of venereal disease. It endorses the recommendations “for making skilled diagnosis and treatment available for the whole community without any deterrent or limiting conditions.” It learns with satisfaction that the Commission does not recommend compulsory notification or detention, but protests, as will be seen below, against the two instances in which it has departed from the voluntary principle. It agrees with the recommendations for the education of medical students, and with those urging adequate instruction for all grades of education; it supports the

proposals in regard to marriage; and it recognises the desirability of more accurate statistics. It takes exception to the portions of the report dealing with poor law patients and with prisoners. In regard to the former class, it protests against the suggestion that the poor law guardians should have the power to detain cases of venereal disease, holding that where the institutions are suitable patients will stay voluntarily as long as may be necessary, and that it would be wise to bring poor law institutions into line with the proposed national system rather than to introduce a sharp differentiation by applying compulsion. In regard to prisoners, it generally accepts the views of the Commissioners that the best modern treatment should be available, and that women doctors should be employed for women prisoners. But if the ambiguous wording of the recommendation as to "a thorough medical examination" means that the medical officer should have power to order the compulsory local examination of a woman prisoner, it enters an emphatic protest. The manifesto ends by strongly urging the Government to give immediate effect to the proposal for a national system of treatment, with the addition of a proviso that steps should be taken to secure the co-operation of women in the preparation and administration of schemes.

The attention of medical practitioners may be drawn to the excellent summary and digest of the report which appears in the April number of the *Edinburgh Review*. It is of particular importance at the present moment in view of the stress it lays on the problem of venereal infection in the army, which is so soon to include the greater portion of our healthy unmarried and younger married men. It calls attention to the comparatively poor results of the best-intentioned lectures, and to the efficiency of the preventive measures which the Commission has described, but upon which it has not expressed an opinion. The writer of the article shows that the case for their use is very strong, and indicates that the "condonation of vice" argument usually employed against them implies the condemnation to suffering not only of the original culprit but of many innocent victims. At a time when exposure is certain to be widespread, his arguments ought to carry great weight.

TUBERCULOSIS AND SANATORIUM RELIEF.—The Scottish

Insurance Commissioners have recently had under consideration, in consultation with the Local Government Board for Scotland, certain administrative questions connected with the treatment of tuberculosis. One of these has been the question of the most satisfactory and economical arrangements for the domiciliary treatment of insured persons in cases where the Insurance Committee have exhausted their sanatorium benefit fund before the end of the year, and the provisions of Section 17 of the National Insurance Act, 1911, do not apply. As regards medical attendance, the insurance service practitioner provides this under his medical benefit agreement, although the case is not recommended for sanatorium benefit, and this attendance is accompanied by the supply of any medicines that may be required. This being so, the only function of the public health authority, so far as regards such cases, is the provision of medical comforts and other requisites outwith the scope of medical benefit. In these circumstances, for the same case, medical attendance and medicines would be provided by the Insurance Committee under the Insurance Acts, whilst medical comforts would be furnished by the public health authority under the Public Health Acts. In order to prevent the occurrence of this divided responsibility, and to secure that the Insurance Committee shall remain in charge of all insured persons in need of domiciliary treatment, the Commission strongly recommend each committee to set apart out of their sanatorium benefit fund at the beginning of the year a sum which can safely be regarded as sufficient to defray the cost of the necessary medicines and medical comforts required for domiciliary treatment throughout the year. The Commission would remind committees that the National Insurance Act gives them a discretionary power to select cases for treatment, and that no person has a right to sanatorium benefit unless recommended for such benefit by the committee. The committee should exercise their power of selection after consultation with their medical adviser, and should obviously proceed with due regard to the amount of their income. The Local Government Board have issued to local authorities a circular on the subject.

AYRSHIRE SCHEME FOR TREATMENT OF CONSUMPTION.—A minute of the Tuberculosis Committee submitted at Ayr County

Council meeting on 2nd May stated that the agreements between the County Council and the Town Councils of Ayr and Kilmarnock for a joint scheme for the administration of tuberculosis in Ayrshire, and for acquiring jointly the hospital at Crofthead, Ayr, as a central smallpox hospital, had been adjusted between the parties, and were in course of being signed. Mr. J. B. Fergusson, of Balgarth, convener of the committee, stated that the agreement covered the whole area of the county, including the burghs, and the effect of the agreement was that in future tuberculosis would be treated under the three-fold system—sanatorium, hospital, and home treatment. For the purposes of sanatorium treatment the Glen Afton Sanatorium had been acquired, and hospital treatment would be given at Kilwinning, Ayr, and Kilmarnock. There would be two dispensaries, one at Ayr and one at Kilmarnock, and shelters would be provided for treatment at home where the conditions were suitable, and nurses would be provided if it was considered that that would be advantageous. The County Council would manage the hospital at Kilwinning, and the Town Councils of Ayr and Kilmarnock would manage the hospitals in their respective burghs. A joint committee of 29 members, 21 of whom would be appointed by the County Council and 4 each by the burghs of Ayr and Kilmarnock, would have supreme management of the whole scheme, and the sanatorium at Glen Afton would be under the management of a sub-committee of that general committee. The whole cost would be pooled and distributed over the whole area according to population. It had taken four years to adjust the scheme. He thought they might feel pleased that the county of Ayr should be a pioneer in the arrangement of a scheme for the whole area of the county, so that in the future every man, woman, and child in the county, rich or poor, would have the opportunity of receiving the most modern treatment for this terrible scourge.

RED CROSS SOCIETY: SCOTTISH BRANCH.—Our last notice of the work of the Scottish Branch of the Red Cross Society brought its record up to the end of 1915. Since the beginning of the present year the Branch has still further widened the scope of its manifold activities. A fête held in Campbeltown during the New Year holidays in aid of the funds of the local

branch resulted in the sum of over £600 being drawn, part of which was devoted to the endowment of one bed in a French and one in a Scottish hospital, and of five cots in the Red Cross motor boats at the Dardanelles. A surgical dressing depôt under the Scottish Branch was opened on 7th January at The Craigs, St. John's Road, Pollokshields, by Lady Stirling Maxwell, for workers on the south side of the city. For the funds of the depôt, which is to be self-supporting, £586 had been collected before the opening ceremony.

The annual meeting of the Dumbartonshire Branch was held in the County Buildings, Dumbarton, on 13th January, Sir Archibald Campbell, Bart., presiding. The report stated that an additional hospital of fifty beds had been equipped at Gartshore, Kirkintilloch, by Mr. Alex. Whitelaw, and since its opening had been fully occupied. A Dumbartonshire ward had also been named in the Bellahouston Hospital at a cost of £1,250. The county depôt in Helensburgh, under the care of Mrs. Kidston, had done valuable work, and through the efforts of Mrs. Brooman White a motor ambulance had been supplied by the county to the authorities, and was now in commission in France. The financial statement showed a credit balance in the various funds amounting to £692, 10s. 10d. There was also a report from Colonel John M. Denny dealing specially with the work in the seven Red Cross hospitals in the county.

In the middle of the month the Headquarters Organising Clothing Committee called attention to the need of games in the larger hospitals at home, and also in the general and stationary hospitals and hospital ships abroad, and asked for gifts of games or money for their purchase.

In a letter announcing the closing of the Red Cross Game Depôt on 29th January, the organising secretary, Mr. J. H. Hedderwick, announced that since its opening on 13th August, 1915, there had been received 2,970 brace of grouse, 228 brace of partridges, 1,966 pheasants, 725 hares, 1,703 couples of rabbits, 265 miscellaneous—in all, over 12,700 head, and in addition 4 stags, 10 roe deer, and 93 haunches and forequarters of venison. These had been distributed among some fifty-six hospitals chiefly in the west and south of Scotland.

The extent of the work of the Red Cross Rest Rooms at the city railway stations was shown by the statement on 22nd

January that the average number of sick and wounded soldiers receiving hospitality (rest between trains, meals, fresh dressings when necessary) in them was 2,000 per month. At the end of the month the Clothing Committee announced that over 500 pairs of cloth boots for frostbitten feet had been sent to the headquarters store at St. Andrew's Halls by Red Cross work parties, and appealed for garments of lighter weight material, with a view to spring and summer requirements.

Messrs. Kerr, Andersons & MacLeod, honorary treasurers of the Branch, announced the receipt of a contribution of £1,000 as a first payment from a fund collected in Shetland for Red Cross work. It was arranged that part of the sum should be devoted to the purchase of a "Shetland Ambulance," and the balance either to another ambulance or to the endowment of beds in a Red Cross hospital.

A free will offering sale of stock, promoted by Messrs. James Craig, Limited, cattle salesmen, Ayr, in aid of the Red Cross and other war funds, was held in the Cattle Market, Ayr, on 27th January, and proved a great success, the sum realised, including cash donations of about £600, amounting to fully £2,200. The sale was declared open by Colonel Northcot, Royal Scots Fusiliers, who said that the sympathy of the whole country was with the men at the front. The Scottish regiments had distinguished themselves in the war, and none had done better than their county regiment, the Royal Scots Fusiliers.

On 5th February the Committee of the Red Cross Sunday Fund announced that as the result of the collections taken throughout Scotland, chiefly on the first Sunday of the year, the sum of £4,576 had been contributed to the war funds of the Branch. A valuable collection of gifts in kind was received by the Springburn section of the Springburn and Woodside Hospital from the Agent-General of Queensland, through the kind offices of Lord Lamington. The West of Scotland Women's Unionist Association sent to the funds of the Branch a contribution of £544, supplementary to a previous gift of £1,000. The Glasgow Incorporation of Maltmen also made a second contribution to the funds, amounting to £250, and a monthly contribution of £80 towards the Motor Ambulance Fund was received from the British Women's Temperance Association.

The Transport Committee issued on 11th February a synopsis of reports on its work from the beginning of the war to the end of last year. It stated that immediately on the outbreak of war, and on the desire of the military authorities being expressed for assistance by the Scottish Branch in the provision of motor ambulances for conveyance of the sick and wounded, energetic steps were taken to supply the vehicles required. The co-operation of the Scottish Automobile Club was secured, and a scheme was launched for a special appeal throughout Scotland for the purpose. That appeal had a widespread and generous response, and the sum of £99,925, 1s. 2d. had been specially subscribed for the purpose. The Transport Committee had acquired by purchase or gift a total of 292 vehicles, and 194 motor ambulances had been provided for work at the seat of war. The report also included statistics relating to the work of the Society at home and abroad.

On 12th February two motor ambulances were presented to the Branch by the Glasgow and District Contractors', Horse Owners', and Allied Trades' Red Cross Fund. Sir George Beatson, who received the gift on behalf of the Branch, said that the quick transport of the wounded was due to the motor ambulance, and in this connection he bestowed high praise on the efforts of Glasgow and the St. Andrew's Ambulance Association. He referred to the figures of the Transport Committee, and said that of the 292 motor ambulances 220 had been purchased by money provided for the purpose and 72 had been presented.

On 18th February the Clothing Committee made an urgent appeal for 30,000 pocket bags for holding the contents of soldiers' pockets when they were sent from the field ambulances and casualty clearing stations back to the base hospitals, &c. The casualty clearing stations, it was stated, required them in such large numbers that it was almost impossible to supply the steady demand. A sum of £263 was received by the honorary treasurers of the Branch from the St. Andrew's Society of Penang, and a sum of £400 for the purchase of a motor ambulance from Orkney, whence also came £150 for the naming of three beds at Bellahouston Hospital. A further contribution of £200 came from the Scottish Teachers' Fund for War Relief, and the Glasgow and District Contractors, Horse Owners, and

Allied Trades sent £950 for the purchase of two motor ambulances and to name three beds. The Chief Constable of Glasgow paid in the sum of £126, 15s. 7d., half the proceeds of a police concert held in St. Andrew's Halls on 14th January. Sums from Valencia, Iceland, Calcutta, and Sarawak were included in the contributions of the week ending 19th February. At a cake and candy sale held in Dumbarton Burgh Hall on 26th February, it was stated that the amount of subscriptions to the Dumbarton Red Cross Society since September was £210, and since the beginning of the war £877. The sale realised over £289.

It was announced on 1st March that a further sum of £1,250 had been received on account of the proceeds of the Red Cross sale held in Glasgow, making the total to date from this source £5,750. A sum of £126, the proceeds of a concert given by the Choral and Orchestral Union of Glasgow in January, was also acknowledged. The Caledonian Society of Calcutta sent a second contribution of £100; "Some Scots in the Philippines," £47, 10s. 6d.; the Scottish community in Batavia, £23, 5s. 10d.; and the St. Andrew Society of Narayanganj, India, a further contribution of £65. A sum of £350 was contributed from the fund raised by a war relief sale in the Cumnock district.

On 9th March the *Saint Margaret of Scotland*, a Scottish Red Cross hospital ship destined for service in Eastern waters, was formally opened to the public for inspection by Lady Beatty, wife of Admiral Sir David Beatty. The ship was a national offering, provided as a direct result of the Red Cross Flag Day held throughout Scotland in October, 1915, by which a sum of £21,000 was raised. She is a Clyde-built vessel of 2,300 tons, with a length of 300 feet, and was originally employed in the inter-colonial mail service in the West Indies. Converted to hospital purposes by Messrs. D. & W. Henderson under Admiralty supervision, she contains seven wards, named after the principal Scottish rivers, and accommodating 92 patients. Provision is made for wounded officers and men, warrant officers, "acute" and isolation cases. In addition, there is accommodation for 80 emergency hammocks. Each ward is self-contained, and, as far as possible, is akin to a shore hospital. In the important departments of the laboratory, dispensary, x-ray room, operating theatre, laundry, and such

like, there is the same careful arrangement and attention to detail and the requirements of comfort, the various compartments being conveniently situated to secure the minimum of labour in administration and control. The staff comprises a principal medical officer in charge, four surgeons, three nursing sisters, thirty active and auxiliary orderlies, and a chaplain. The orderlies have been supplied by the St. Andrew's Ambulance Association. The captain and crew of 67 complete the complement of the ship. The opening ceremony, at which the unpropitious weather did not lessen the enthusiasm of the invited company, took place at the Broomielaw, and at its close the ship was thrown open to the inspection of the public on payment of a small charge for the benefit of the Red Cross funds. It remained open till the end of the week, and was visited by large numbers of people.

During March a "Scottish Penny-a-Week Fund" was instituted in many of the towns and villages of Scotland, the object being by means of weekly house-to-house collections to give every household the opportunity of regular contribution to the "Comforts" fund. As an example of what could be achieved in this manner, it was stated that one small town of 8,000 inhabitants, starting shortly after the outbreak of war, had already raised £750 by this means alone. Among the contributions acknowledged by the honorary treasurers was a further sum of £100 from the girls of Ferguslie Thread Works, Paisley, for the installation of two beds in the Scottish Red Cross Hospitals at Rouen, making, with their previous contributions, a total of £260.

An appreciative letter from Lord Balfour of Burleigh was received in the middle of the month by the chairman of the War Executive of the Branch. It described a visit which Lord Balfour had paid to the Scottish Hospital in Paris, and spoke of the excellence of the work it did. Sums of £338, the proceeds of a free gift sale at Stranraer, and £323, from the Renfrewshire Freemasons, were received by the honorary treasurers. An anonymous donor intimated to Dr. Elsie Inglis, Edinburgh, the gift of £1,000 for the Scottish Women's Hospital. On 25th March a contribution of £1,258 was announced from the Dundee Branch, and also a sum of £300 from the readers of the *Glasgow Evening News*, whose total contributions amounted to £1,550,

and a sum of £250 from Victoria Drive Higher Grade School, Scotstoun. The honorary treasurers intimated the receipt of a contribution of £10,000 from the coalmasters of Scotland. Of this sum, £5,500 came from the Lanarkshire Coalmasters' Association, £2,500 from the Fife and Clackmannan Coal Owners' Association, £1,000 from the Lothians Coal Owners' Association, and £1,000 from the Ayrshire Coal Owners' Association. Four complete motor ambulances were received from the Central Eastern Red Cross District of Scotland, and one from the City of Edinburgh Red Cross Branch.

It was announced that through the generosity of Sir Charles Cayzer, Bart., Ralston House, near Paisley, had been placed at the disposal of the Branch for the treatment of paralysed soldiers, and that the Branch had accepted the generous gift. It was provided that the preparation of the house and its equipment were to be undertaken by the donor, while the Branch would provide the maintenance. Towards the end of the month it was intimated that £6,162, 17s. had been received from the Lanarkshire Branch, being the amount received from County Red Cross sales at Lanark, Coatbridge, and Hamilton, and £414 from the Institute of Accountants and Actuaries in Glasgow further towards the cost of a motor ambulance. At a meeting of the executive of the Drapery Red Cross fund it was reported that the fund amounted to about £4,250, and it was agreed to close it as at 31st March. A flag day in aid of Scottish Red Cross work, held in Paisley on 25th March, realised £177.

REVIEWS.

The Biology and Treatment of Venereal Diseases. By J. E. R. M'DONAGH, F.R.C.S. London: Harrison & Sons. 1915.

THE literature of syphilis is in process of being rewritten. A contribution of the highest importance is Mr. M'Donagh's recent book. The somewhat cumbersome title, *The Biology and Treatment of Venereal Diseases and the Biology of Inflammation and its Relationship to Malignant Disease*, indicates the wide field covered by the author; but while the other chapters are both interesting and suggestive, it is the section on syphilis which gives the work its distinction. The main argument rotates round Mr. M'Donagh's contention that the spirochæta pallida is merely a phase in the life-history of the organism which he calls the "Leucocytozoon syphilidis." Histological, chemical, and clinical facts are marshalled in support of this theory with a thoroughness which is almost complete. But there are few questions intimately or remotely associated with syphilis which Mr. M'Donagh does not ask and answer with an originality which is always refreshing and frequently convincing.

We note that Mr. M'Donagh no longer relies on the Wassermann test as a guide to the amount of treatment required or of its success in establishing a cure, and also that he has almost abandoned the use of the "provocative injection" of salvarsan. He says a positive Wassermann "only means that the patient has had syphilis," and again, "I now never gauge my treatment by the Wassermann reaction. I give the patient the maximum amount of treatment which I have learnt by experience is necessary." On p. 221 he maintains that treatment based solely on a positive Wassermann may indeed be harmful. "A patient who, during the latent stage, gives a persistently positive Wassermann reaction of the blood, stands little chance of getting a degenerative nerve lesion; while a patient who, during this stage, gives a persistently negative Wassermann

reaction, is far more likely to develop a degenerative nerve lesion."

"Therefore, I have for some time made the rule not to treat a patient who persistently gives a positive Wassermann reaction during the latent stage, *i.e.*, provided his previous treatment has been adequate, because I regard such a reaction as an indication of his protective capacity, which I am only likely to damage by treatment."

The presentation of Mr. M'Donagh's important observation on p. 153, that protein in the urine of a case of acute syphilis is likely to be globulin rather than albumin, and that the former does not indicate nephritis, is marred by a misleading description of the urine tests.

The chapter on syphilis of the skin is particularly good. It will simplify considerably the teaching of this subject.

The illustrations are a feature of the book. Altogether, this volume is a record of many original conceptions and much exhaustive research brilliantly executed.

A Text-Book of Radiology. By EDWARD REGINALD MORTON, M.D., F.R.C.S.Ed. London: Henry Kimpton. 1915.

In the preface the author tells us that his object has been to furnish "a useful guide to those taking up radiology for the first time," and he is to be congratulated on the very successful accomplishment of his purpose. The book contains 217 pages. It opens with the usual chapter on "Electrical Principles." About one-third of the book is devoted to the description of apparatus. Tubes are discussed at length, and many forms are described, including the Coolidge tube, which represents the latest great advance in tube construction. This section is concise and yet contains a very full record of appliances. Chapters XII to XV are devoted to "Regional Radiography," including the thorax and the digestive and urinary systems. The writer, while avoiding lengthy discussions, gives exact details both regarding the methods and the appearances on which opinions are to be formed. The book closes with a chapter on "X-ray therapeutics," in which in ten pages the

writer puts shortly and clearly all the essentials of the subject. On one point only do we wonder if the author has spoken wisely. He tell us that for those who are still undamaged "x-rays proof gloves are full protection." Not many years ago we were assured by an eminent exponent of radiology that ordinary rubber gloves were complete protection. We are now certain that the latter was wrong, and we are of opinion that the former is wrong too. A better book could not well be put into the hands of the beginner, and even to those who are expert it is well worth reading. It has entire absence of that vagueness which is so common a weakness in books on this subject. It is well indexed, and the illustrations are excellent.

An Index of Treatment by Various Writers. Edited by ROBERT HUTCHISON, M.D., F.R.C.P., and JAMES SHERREN, F.R.C.S. Seventh Edition. Bristol: John Wright & Sons, Limited. 1915.

A BOOK so thoroughly established in the favour of the profession as the *Index of Treatment* needs few words to commend its seventh edition. A partial change of editorship has taken place, Mr. Stansfield Collier having been replaced as surgical editor by Mr. James Sherren, under whose auspices, and with whose collaboration, the surgical side of the volume is handled as ably as ever. Several new articles have been added, among them those on radium therapy, sterility, and the psycho-neuroses. The last of these is particularly informative, although its author, Dr. Crichton Miller, would seem to attribute a value to Freudian methods and an importance to Freudian theories which will not be admitted without contest by the many antagonists of Freudism. The older articles have all been brought thoroughly up to date, and the amount of enlargement which the book has undergone is shown by an increase of over a hundred pages. The new edition, like its predecessors, is thoroughly representative of the best and most modern methods of treatment.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

EDITED BY ROY F. YOUNG, M.B., B.C.

M E D I C I N E.

"The Sign of the Tongue" in Typhus Fever. By Dr. P. Remlinger (*Paris Medical*, 8th January, 1916).—This sign is of importance in the differential diagnosis between typhus and typhoid or paratyphoid fever, especially in those cases of typhoid where the suddenness of onset, confluence of rose spots, intensity of headache, and pain in the back, with constipation, suggest typhus. In typhoid and paratyphoid the patient has no difficulty in putting out the tongue, but in cases of typhus he is quite unable to project it beyond the teeth. It is retained at the base of the palate and appears to be drawn towards the pharynx. Sometimes there is also a slight trismus caused by contraction of the masseters, producing a difficulty in speaking almost comparable to that present in tetanus. During a residence of three years in a town where cases of typhus were by no means rare, Remlinger has not seen a single exception to this sign. He points out that in standard books no mention is made of this sign, but he quotes five authors who are writing of cases actually under observation, and who describe the sign as constantly met with in typhus, so that it cannot be said that the sign happened to be present in this series of cases, and was not likely to be met with elsewhere. The sign is of great value where rapid diagnosis is necessary and laboratory facilities are lacking.

—JAMES SCOTT.

S U R G E R Y.

The Care of Abdominal Surgical Cases. By Brooks H. Wells (*American Journal of Surgery*, April, 1916).—This is a report of a short paper read by Wells before the New York Academy of Medicine. The cases dealt with by him are mainly of a gynaecological type.

Patients are usually examined first at the dispensary, so that their general physical as well as their pelvic and abdominal conditions are known when they are transferred to the wards. As a rule, they are not more than twenty-four hours in residence before operation. On admission a mild laxative is administered

and an enema on the evening before operation. The abdomen is shaved and scrubbed with tincture of green soap, dried with alcohol and covered with sterilised gauze, also on the previous evening. On the table the dry skin is painted with $3\frac{1}{2}$ per cent tincture of iodine. A moderate Trendelenburg position is used in nearly all cases except acute appendicitis and where there is reason to fear cardiac weakness. An intermuscular or the suprapubic transverse incision is the usual incision. Gentle manipulation of parts and avoidance of rubbing peritoneum are aimed at, as well as the minimum of exposure of peritoneum-covered organs to the drying influence of the air. Plain or chromicised catgut is the ligature and suture material, the former being generally used for the skin. Before the patient leaves the table a hypodermic injection of gr. $\frac{1}{12}$ of atropine sulphate is administered, followed in a few minutes by eserine salicylate gr. $\frac{1}{15}$. Eserine is not given in larger doses than gr. $\frac{1}{15}$, nor at shorter intervals than four or six hours. If there is vomiting after operation, water with a little bicarbonate of soda is given freely, and, if possible, the head and shoulders are raised. One-half to one pint of pure water is given by the rectum every four hours to relieve shock and control thirst. Castor oil is given on the third or fourth day. The patient is allowed from the beginning to turn in bed, or to be moved by the nurse, and unless there is contraindication she is allowed out of bed to sit for about half an hour on the fourth day. The time out of bed is then increased daily. The author gives statistics of 500 cases, of which 11 died. The following surgical complications occurred:—Deep wound infections 6, skin infections 13, hæmatoma 10, faecal fistula with spontaneous healing 2, hernia 1.

—CHARLES BENNETT.

Suprapubic Prostatectomy Under Local Anæsthesia. By R. L. Payne, jun. (*American Journal of Surgery*, March, 1916).—The technique described by the author of this article is a modification of that put forward by Allen. It is to be used chiefly where a general anæsthetic is inadvisable, but also we must remember that even with a general anæsthetic the painful impulses are not cut off from the brain and hence set up the condition of shock. The local anæsthetic minimises hæmorrhage by the pressure of infiltration, and by the specific action of the adrenalin which is added. One hour before operation one No. 1 H.M.C. tablet is administered by hypodermic injection, and a second is given fifteen minutes before operation if the patient shows a tendency to wakefulness or nervousness. The local anæsthetic solution is made up of novocain 0.50 strength, and a quantity of adrenalin (1 in 1,000), making the proportion of 10 drops to the ounce. The upper and lower limits of the proposed incision are anæsthetised down to below the deep fascia, and then the intervening length is dealt with. This enables the operator to expose the bladder. The fundus wall is then injected and the bladder opened. Two fingers guide a long injecting needle down to the prostate, the internal meatus and urethra are infiltrated, and, finally, the enlarged gland is injected at its superior, inferior, and lateral aspects.

—CHARLES BENNETT.

BACTERIOLOGY.

Bacillus Fæcalis Alkaligenes as a Pathogenic Agent. By A. Rochaix and H. Marotte (*Compt. Rend. Soc. de Biol.*, Paris, lxxix, 1916).—In the course of a large series of blood cultures in cases clinically resembling typhoid fever, the authors have, on two occasions, isolated from the blood the bacillus fæcalis alkaligenes. The two patients from whom this microbe was obtained suffered from a febrile disorder with gastro-intestinal symptoms. During the first two or three days of illness the temperature oscillated between 39° and 40° C., after which it gradually fell to normal in ten or twelve days' time. In both cases the serum gave a negative agglutination reaction with *B. paratyphosus* A and B, but against *B. typhosus* the result was positive—to 1-100 in one case, to 1-50 in the other (former anti-typhoid vaccination). The microbes isolated from the blood, on the other hand, were agglutinated by the sera of their respective patients to the extent of 1-1,200 and 1-1,500, even after several sub-cultivations. Moreover, the serum of the first patient agglutinated the microbe of the second to 1-1,200, the serum of the second the microbe of the first to 1-1,000. Neither microbe was agglutinated to any extent by anti-typhoid or by anti-paratyphoid A or B sera. The morphological and cultural characters of the organisms, and their staining reactions (tabulated in the paper), show that they are without doubt the bacillus fæcalis alkaligenes.

The presence of this organism in the blood of patients presenting typhoid symptoms is rare. Petruchsky (1902), Firth (1913), and Straub and Krois (1914) have reported in all five cases. The authors have, therefore, established further proof of the possibility of the passage of this organism into the blood, and hence of its eventual pathogenicity for man.—MATTHEW J. STEWART.

Books, Pamphlets, &c., Received.

Operative Midwifery: A Guide to the Difficulties and Complications of Midwifery Practice, by J. M. Munro Kerr, M.D., C.M.Glasg. Third edition. With 308 illustrations in the text. London: Baillière, Tindall & Cox. 1916. (25s. net.)

Bed-Sores: Their Prevention and Cure, by Catherine W. Smart. London: John Bale, Sons & Danielsson, Limited. 1916. (1s. net.)

The Medical Who's Who, 1916. Published annually. London: The Fulton-Manders Publishing Company. (10s. 6d. net.)

Our Baby: For Mothers and Nurses, by Mrs. J. Langton Heuer. Fifteenth edition. Illustrated. Fully revised (120th thousand). Bristol: John Wright & Sons, Limited. 1916. (Stiff covers, 1s. 6d. net; limp, 2s. 6d. net.)

Notes on Galvanism and Faradism, by E. M. Magill, M.B., B.S.Lond., D.P.H. With 67 illustrations. London: H. K. Lewis & Co., Limited. 1916. (4s. 6d. net.)

GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDED 20TH MAY, 1916.

	WEEK ENDING			
	April 29.	May 6.	May 13.	May 20.
Mean temperature, . . .	51·5°	42·9°	45·3°	51·6°
Mean range of temperature between highest and lowest,	12·5°	6·1°	8·1°	10·3°
Number of days on which rain fell,	3	4	7	4
Amount of rainfall, . ins.	0·87	1·63	1·17	0·72
Deaths (corrected), . . .	354	318	313	332
Death-rates,	16·9	15·2	15·0	15·9
Zymotic death-rates, . . .	1·3	1·3	2·0	1·5
Pulmonary death-rates, . .	4·9	4·2	3·8	3·9
DEATHS—				
Under 1 year,	54	48	52	60
60 years and upwards, . .	86	83	73	92
DEATHS FROM—				
Small-pox, . . . . .	...	...	...	...
Measles,	17	17	28	21
Scarlet fever,	3	2	5	2
Diphtheria,	1	1	4	1
Whooping-cough,	8	7	4	8
Enteric fever, . . . . .	...	...	...	...
Cerebro-spinal fever, . . .	1	1	4	2
Diarrhoea (under 2 years of age),	5	5	1	1
Bronchitis, pneumonia, and pleurisy,	81	53	50	58
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Cerebro-spinal meningitis, .	4	9	9	3
Diphtheria and membranous croup,	26	25	16	17
Erysipelas,	29	20	13	16
Scarlet fever,	70	65	91	99
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	1	3	5	2
Phthisis,	53	65	63	67
Puerperal fever,	7	8	2	2
Measles,*	330	469	528	441

* Measles not notifiable.

INDEX.

—o—

- ABDOMINAL operations, intra-abdominal use of oxygen in, 71.
surgical cases, care of, 427.
- Abortion in a double uterus, 267.
- ABSTRACTS FROM CURRENT MEDICAL LITERATURE—
Obstetrics and gynaecology, 71, 157, 309.
Diseases of the eye, 73, 238, 372.
Bacteriology, 76, 429.
X-rays, &c., 78.
Surgery, 156, 237, 308, 371, 427.
Medicine, 235, 306, 370, 427.
- Adenoids in deafness, 179.
- Albuminuria, accidental, 175.
false, 173.
true, 174.
and fibroid complicating pregnancy, 266.
and pyuria, 172.
- Anæmia in etiology of gastric ulcer, 385.
neurasthenia in, 95.
- Anaesthesia, local, in suprapubic prostatectomy, 428.
Vernon Harcourt inhaler in chloroform. H. P. Fairlie, 396.
- ANDERSON, J. WALLACE.—John Gibson Fleming, surgeon and manager, Glasgow Royal Infirmary, 339.
- Angina pectoris, neurasthenia in, 90.
- Antipepsin in gastric ulcer, 384, 387.
- Arms, double nuchal displacement of, in footling presentation, 310.
- Atropine-strychnine treatment of drug addiction, 201.
- Aural school-clinique, the. J. K. Love, 101.
suppuration, adenoids in, 179.
- Auto-vaccin *iodi*: total in gas gangrene, 253.
- BACILLUS aerogenes capsulatus in gas gangrene, 244.
coli in pyuria, 166.
faecalis alkaligenes as a pathogenic agent, 429.
of malignant oedema in gas gangrene, 245.
oedematis in gas gangrene, 246.
perfringens in gas gangrene, 244.
sporogenes in gas gangrene, 245.
tuberculosis in pyuria, 168.
typhosus in pyuria, 167.
- BENNETT, C.—Note on the treatment of tuberculous sinuses, 107.
- Bilious indigestion after gastro-enterostomy, treatment, 329.
regurgitation after gastro-enterostomy, 313; treatment, 326.
- Bladder, cystoscopic appearances in diseases of, 278.
modes of infection of, 165.
pyuria in catarrh of, 273.
tuberculosis of, 169.
- Blow-flies, 15.
- Bone tissue, Mosetig-Moorhof's plug for, 372.
- Breech presentations, delay in, from extension of the legs. R. Jardine, 81.
- BUCHANAN, R. M.—Insects in relation to disease, 1.
- CESAREAN section, extra peritoneal, 157.
- Calliphora erythrocephala*, 16.
comitoria, 16.
- Carcinoma of cervix and vagina, radium in, 158.
uterus, heat in treatment of, 310.
- Cataract in glass workers, 73.
etiology, 74.
- Cervix uteri, radium in cancer of, 158.
unusual degeneration of, 71.
- Chloroform, Vernon Harcourt inhaler, series of 800 cases with. H. P. Fairlie, 396.
- Chlorosis in etiology of gastric ulcer, 386.
- Cholecystitis, 308.
- Cholelithiasis, 371.
- Climacteric in relation to gastric ulcer, 389.
- Colloidal silver in tetragenous septicæmia, 77.
- Complement-fixation in diagnosis of phthisis, 235.
- Complications of pregnancy, notes on cases of. R. Jardine, 259.
- Constipation in etiology of gastric ulcer, 387.
- CRAIG, J.—The neurasthenic element in disease, 87.
- CURRENT TOPICS—
Matriculation at Glasgow University, 40.
Appointments, 40, 110, 207, 286, 354, 411.
Royal Faculty of Physicians and Surgeons: election of office-bearers and examiners, 42.

CURRENT TOPICS (*continued*)—

- The late Principal M'Call, 44.
- Professional Classes War Relief Council, 45.
- Territorial decoration for Major Penney, 46.
- Glasgow medical casualties, 46.
- Tuberculosis and war, 47.
- Grants for medical treatment of necessitous school children, 47.
- Medical inspection of Ayrshire schools, 49.
- Nursing work among the poor (Higginbotham Association), 49.
- Co-operation of Trained Nurses: annual meeting, 50.
- Western Infirmary: annual meeting and report, 51.
- Victoria Infirmary: annual meeting and report, 55.
- Glasgow Women's Hospital: annual meeting and report, 59.
- Glasgow Lock Hospital: opening of new dispensary, 60.
- Royal Faculty of Physicians and Surgeons: new Fellow, 112.
- College of Surgeons of Edinburgh: new Fellows, 112.
- Library of the Royal College of Physicians of Ireland, 112.
- Attestation of medical students, 113.
- Requests to Glasgow medical charities, 113, 292.
- Notification of measles, 114.
- Administration of medical benefit, 115.
- Health Insurance Committee on medical research, 115.
- Literary intelligence, 116, 230, 298.
- Royal Infirmary Dorcas Society, 117.
- Western Infirmary Samaritan Society, 118.
- Glasgow Medical Mission, 119.
- Royal Infirmary: New Year's Day meeting, 120.
- Western Infirmary: completion of building scheme, 122.
- Victoria Infirmary: New Year's Day meeting, 126.
- Stirling Royal Infirmary: annual report, 127.
- War honours for Glasgow graduates, 128, 210, 286, 361, 412.
- The Red Cross decoration, 132.
- Red Cross Society, Scottish Branch, 133, 417.
- Glasgow and West of Scotland Medical Association, 207.
- Royal Faculty of Physicians and Surgeons: new Fellow: alterations in regulations for Fellowship examination, 209.
- Triple qualification passes, 210, 355.
- Admission to the Indian Medical Service, 210.
- Nurses and the Y.M.C.A., 211.
- Midwives (Scotland) Act, 1915, 211.
- Central Midwives Board, 214, 215.

CURRENT TOPICS (*continued*)—

- Presentation to matron of Royal Infirmary, 215.
- Glasgow Royal Infirmary: annual meeting, 216.
- Maternity Hospital: annual meeting, 220.
- Royal Hospital for Sick Children: annual meeting, 222.
- Glasgow Central Dispensary, 225.
- Women's Private Hospital, 225.
- Convalescent Home, 226.
- Scottish Nurses' Association, 227.
- Medical inspection of school children, 228.
- Sanatorium treatment in Lanarkshire, 229.
- The Finlayson lecture, 236.
- Appointment for Surgeon-General Babbie, 287.
- F.R.S. for Professor G. G. Henderson, 288.
- Nurse Kate Bell, 289.
- West of Scotland Hospital for Limbless Sailors and Soldiers, 291, 363.
- Royal Samaritan Hospital for Women, 292.
- Glasgow Lock Hospital, 293.
- Royal Asylum, 294.
- Infant Health Visitors' Association, 295.
- Royal Alexandra Infirmary, Paisley, 297.
- Greenock Infirmary, 298.
- University of Glasgow: graduation in medicine, 353, 411.
- Licence in dental surgery: passes, 356.
- Extra-mural teaching in Glasgow, 356.
- Glasgow Hospital Sunday Fund, 357.
- Royal Cancer Hospital, 358.
- Care of defective children, 359.
- The army and medical men: new scheme of enrolment, 360.
- The late Captain John Wilson, R.A.M.C., 362.
- Soldiers' and Sailors' Families Association, 412.
- Effect of war on child life in Glasgow, 413.
- Gift to Paisley Infirmary, 414.
- Report of Royal Commission on venereal diseases, 414.
- Tuberculosis and sanatorium relief, 415.
- Ayrshire scheme for treatment of consumption, 416.
- Cystocele, etiology of, 309.
- Cystoscopic appearances in renal disease, 281; vesical disease, 278.
- DEAFNESS, adenoids in, 179.
- and nasal affections. W. S. Syme, 177.
- hypertrophied turbinates in, 182.
- irregularities of nasal septum in, 184.
- Diarrhœa, house-fly in spread of, 10.
- Disabilities for military service, 307.
- Douching, nasal, in nasal suppuration, 183.
- Drug addiction, cases, 192, 196.
- treatment of. D. K. Henderson, 190.
- "Dublin method" in third stage of labour, 72.

- ECLAMPSIA, puerperal, in case of triplets, 269.
Empusa muscæ, 12.
 Enteric fever, house-fly in spread of, 9.
 Esbach's albuminometer, source of error in testing with. H. E. Jones, 31.
 Extraperitoneal Cesarean section, 157.
- FAIRLIE, H. P.—Series of 800 cases with the Vernon Harcourt chloroform inhaler, 396.
Fannia canicularis, 13.
scalaris, 14.
 Fibroid, uterine, and albuminuria complicating pregnancy, 266.
 Fleming, John Gibson, surgeon and manager, Glasgow Royal Infirmary. J. Wallace Anderson, 339.
 Footling presentation, double nuchal displacement of arms in, 310.
 Fracture of vault of skull in the new-born, 157.
- Gamasus muscæ*, 12.
 Gas gangrene in the present war. M. Weinberg, 241.
 bacteriology, 244.
 etiology, 249.
 experimental production, 248.
 treatment, 252.
 vascular obliteration in, 250.
 Gastric ulcer, etiology and treatment of. H. Morton, 377.
 antipepsin in, 384, 387.
 chlorosis in etiology of, 386.
 constipation in etiology of, 337.
 hygienic conditions in, 386.
 hyperchloridria in, 379.
 influence of anæmia in, 385.
 in relation to climacteric, 389.
 local necrosis in, 383.
 trauma in, 382.
 microbic infection in, 388.
 pepsin content in, 381.
 protective influences in, 383.
 Gastro enterostomy, conditions complicating convalescence after. A. MacLennan, 313.
 bilious regurgitation after, 313; treatment, 323.
 diet after, 324.
 irregular ejection of stomach contents after, 316; treatment, 329.
 MacLennan's operation for, 320.
 pain after, 318; treatment, 330.
 reflex symptoms after, 318; treatment, 329.
 Gastroptosis, 78.
 Gastrosuccorrhœa, 380.
 Gaucher's disease in infancy, 306.
 Glasgow, aural school-cliniques in, 102.
 meteorological and vital statistics, 80, 160, 240, 312, 376, 430.
 Glass workers' cataract, 73.
 Glaucoma, etiology, 372.
 Glaucoma, pathological anatomy, 373.
Glossina morsitans, 18.
palpalis, 19.
- HÆMOLYSIS in transfusion of babies with maternal donors, 370.
 HARRINGTON, A. W., and J. H. TRACHER.—Sub-acute anterior poliomyelitis, 331.
 Heart-block, case of, with recovery, 235.
 Hemianopsia following injuries in war, 238.
 HENDERSON, D. K.—Treatment of drug addiction, 190.
 Heroin addiction, 190.
 Hour-glass stomach, 78.
 House-fly, development of, 3.
 extirpation of, 10.
 feeding habits of, 8.
 in spread of infection, 9.
 parasites of, 11.
 structure of, 6.
 the lesser, 13.
 Hyperchloridria in gastric ulcer, 379.
 Hysterical stomachs. A. E. Maylard, 25.
- ICHTHYOL in treatment of septic wounds, 237.
 Infantile paralysis, *Stomoxys calcitrans* in, 15.
 Infection, house-fly in spread of, 9.
 Insects in relation to disease. R. M. Buchanan, 1.
- JARDINE, R.—Delay in breech presentations from extension of the legs, 81.
 notes on cases of complications of pregnancy, 259.
 JONES, H. E.—Urine testing with Esbach's albuminometer: source of error discussed, 31.
- KIDNEYS, cystoscopic appearances in diseases of, 281.
 role of lymphatics in ascending infection of, 370.
 tuberculosis of, 169.
- LABOUR, "Dublin method" in third stage of, 72.
 pituitrin in, 72.
 nitrous oxide in, 71.
 Latrine fly, 14.
 LOVE, J. K.—The aural school-clinique, 101.
Lucilia cæsar, 16.
 Lymphatics, rôle of, in ascending renal infection, 370.
- M'LELLAN, A. N.—Rupture of a pregnant diverticulum of the uterus, 390.
 MACLENNAN, A.—Prevention and treatment of some obscure conditions complicating convalescence after gastro-enterostomy, 313.

- Malignant disease, neurasthenia in, 93.
growths, inhibitive effect of x-rays on, 78.
- MAYLARD, A. E.—Hysterical stomachs, 25.
- Meningitis due to micrococcus tetragenus, 76.
sugar content of spinal fluid in, 236.
- Menthol in treatment of tuberculous sinuses, 107.
- Microbic infection in gastric ulcer, 388.
- Middle-ear suppuration, treatment at school-cliniques, 104.
- Military service, disabilities for, 307.
- MORTON, H.—Etiology and treatment of gastric ulcer, 377.
- Mosetig-Moorhof's bone plug, 372.
- Musca domestica*, life-history of, 3.
- NASAL affections and deafness. W. S. Syme, 177.
douching in nasal suppuration, 183.
septum, irregularities of, in deafness, 184.
- Necrosis, local, in etiology of gastric ulcer, 383.
- Nephritis, pyuria in suppurative, 275.
- Neurasthenia in anæmia, 95.
in angina pectoris, 90.
chronic renal disease, 89.
malignant disease, 93
tabes mesenterica, 91
- Neurasthenic element in disease. J. Craig, 87.
- New-born, fracture of vault of skull in, 157.
- NEWMAN, D.—Pyuria, a symptom: its causes and diagnosis, 161, 270.
- Nitrous oxide in labour, 71.
- OBITUARY—
Allan, J., 37.
Anderson, J., 351.
Barr, G. F., 350.
Bates, T., 351.
Buchan, G., 109.
Campbell, A., 410.
Campbell, A. T., 203.
Gilroy, J., 409.
Glen, J., 204.
Heron, G. A., 38.
Mackintosh, J. J., 350.
Macpherson, W. G., 351.
MacRury, J., 109.
Middleton, R. W., 204.
Miller, T., 285.
Murray, W. D., 203.
Paterson, J. D., 36.
Pinkerton, J., 205.
Pollock, A. B., 409.
Rae, W. M., 285.
Tant, E. B., 37.
Thomson, R., 36.
Valentine, G., 206.
Wilson, A. F., 284.
Wilson, J., 284.
- Obstetric chair, use of, 158.
- Operation, preparation of patient for, 156.
- Optic nerve, Schnabel's cavernous atrophy of, 373.
- Oxygen, intra-abdominal use of, 71.
- PAIN after gastro-enterostomy, 318; treatment, 330.
- Paralysis, *Stomoxys calcitrans* and infantile, 15.
- Parovarian cyst complicating pregnancy, 264.
- Pelvic organs, radium in cancer of, 159.
- Pepsin content in gastric ulcer, 381.
- Phthisis pulmonalis, complement-fixation in diagnosis of, 235.
- Pituitrin in labour, 72.
- Pneumococcus in pyuria, 171.
- Polio-encephalitis, case of, 371.
- Poliomyelitis, serum therapy of, 306.
Stomoxys calcitrans in, 15.
subacute anterior. A. W. Harrington and J. H. Teacher, 331.
- Pollenia rudis*, 16.
- Pregnancy complicated by albuminuria and fibroid, 266.
parovarian cyst, 264.
notes on cases of complications of. R. Jardine, 259.
pernicious vomiting of, 261, 262, 263.
- Prolapse, etiology of uterine, 309.
- Prostate, surgery of the enlarged, 309.
- Prostatectomy, suprapubic, under local anæsthesia, 428.
- Purves Stewart's treatment of drug addiction, 201.
- Pyelitis, bacillus coli in, 166.
- Pyelonephritis, 276.
- Pyonephrosis, 276.
- Pyuria, a symptom: its causes and diagnosis. D. Newman, 161, 270.
albuminuria in, 172.
bacillus coli in, 166.
bacillus typhosus in, 167.
in renal tuberculosis, 277.
suppurative nephritis, 275.
method of examining urine in, 270.
organisms present in, 163.
pneumococcus in, 171.
pyelitic, 274.
pyelonephritic, 276.
pyonephrotic, 276.
renal, 273.
staphylococcus in, 171.
streptococcus pyogenes in, 171.
tubercle bacillus in, 168.
urethral, 272.
vesical, 273.
- RADIUM in uterine cancer, 158, 159.
- Reflex symptoms after gastro-enterostomy, 318; treatment, 329.

- Renal diseases, cystoscopic appearances in, 281.
 neurasthenia in chronic, 89.
 septic, 165.
 infection, rôle of lymphatics in ascending, 370.
 tuberculosis, 169.
 tuberculosis, pyuria in, 277.
 Retraction ring, action of, in breech presentations, 83.
 diagnosis of, 85.
 Retroflexion of gravid uterus with pernicious vomiting, case, 262.
 retention of urine, case, 260.

REVIEWS—

- ASCH, P.—*Moderne Therapie der Gonorrhöe beim Manne*, 154.
 BAYLISS, W. M.—*Principles of general physiology*, 66.
 BILLINGS, F., and J. H. SALISBURY.—*General medicine* (practical medicine series, vols. i and vi), 152.
 BREND, W. A.—*Handbook of medical jurisprudence and toxicology*, second edition, 369.
 DAVIES, H. M.—*Manual of minor surgery and bandaging* (Heath, Pollard), fifteenth edition, 302.
 DAVIS, G. G.—*Applied anatomy*, third edition, 303.
 DESPARD, L. L.—*Text-book of massage and remedial gymnastics*, second edition, 151.
 Encyclopædia medica. Second edition, edited by J. W. Ballantyne. Vol. i, Abattoirs to Asphyxia, 146; vol. ii, Aspiration to Chlorodyne, 300.
 FALTA, W.—*Ductless glandular diseases* (translated and edited by M. K. Myers), 144.
 FITZWILLIAMS, D. C. L.—*Nursing manual for nurses and nursing orderlies*, 363.
 GASTOU, P.—*Le laboratoire du praticien: analyse clinique—méthodes et procédés*, 70.
 GHOSH, R. N., and J. L. DAS.—*Treatise on hygiene and public health*, second edition, 69.
 Guy's hospital reports, vol. lxxviii, edited by F. J. Steward and H. French, 142.
 HABERSON, S. H., F. J. WETHERED, P. H. HARTLEY, J. J. PERKINS, and W. O. MEEK.—*Report on after-histories of patients discharged from the Brompton hospital sanatorium, 1905-1910*, 155.
 HARRIS, W.—*Nerve injuries and shock*, 141.
 HARTENBERG, P.—*Treatment of neurasthenia* (translated by E. Playfair), 149.
 HORDER, T. J.—*Cerebro-spinal fever*, 142.
 HOWARD, R.—*Practice of surgery*, 368.
 Human derelicts: medico-sociological studies (edited by T. N. Kelyack), 147.
 HURRY, J. B.—*Vicious circles of neurasthenia and their treatment*, 367.

REVIEWS (continued)—

- HUTCHISON, R., and J. SHERRIN.—*Index of treatment by various writers*, seventh edition, 426.
 KENWOOD, Lieutenant-Colonel H. R.—*Health in the camp: a talk to soldiers*, 140.
 KING, B.—*Scheme for dealing with tuberculous persons*, 304.
 LAMBARD, L.—*Physiologie normale et pathologique des reins*, 153.
 LEE, J. B. DE, and H. M. STOWE.—*Obstetrics* (practical medicine series, vol. vii), 65.
 LEJARS, F.—*Urgent surgery*, vol. ii (translated from the seventh French edition by W. S. Dickie and E. Ward), 301.
 LEBLAN, Major P. S.—*Sanitation in war*, 61.
 LLEWELLYN, LL. J., and A. B. JONES.—*Fibrositis, so-called chronic rheumatism, and sacro-iliac relaxation*, 232.
 LOCKHART-MUMMERY, P.—*Diseases of the rectum and anus*, 304.
 M'DONAGH, J. E. R.—*Biology and treatment of venereal diseases*, 424.
 MACNAUGHTON-JONES, H.—*Ambidexterity and mental culture*, 305.
 MORTON, E. R.—*Text-book of radiology*, 425.
 MOWAT, H.—*X-rays, how to produce and interpret them*, 155.
 MURPHY, J. B.—*General surgery* (practical medicine series, vol. ii), 154.
 PATRICK, H. T., and P. BASSOR.—*Nervous and mental diseases* (practical medicine series, vol. x), 150.
 PLOTZ, H., P. K. OLITZKY, and G. BAEHR.—*Etiology of typhus exanthematicus*, 232.
 Practitioner's guide to clinical research (the Clinical Research Association), 151.
 RAMSAY, A. M., J. D. GRANT, H. L. WHALE, and C. E. WEST.—*Injuries of the eyes, nose, throat, and ears*, 64.
 RANKINE, T.—*Simple methods of radiographic localisation*, 153.
 Reports of the Episcopal Hospital, Philadelphia, vol. ii, 150.
 RIDLON, J., and C. A. PARKER.—*Pediatrics and orthopedic surgery* (practical medicine series, vol. v), 367.
 St. Bartholomew's Hospital reports, vol. i, part i (edited by F. W. Andrewes, W. M. Eccles, G. E. Gask, W. D. Harner, H. Thursfield, and H. Williamson), 148.
 SUTHERLAND, G. A.—*The heart in early life*, 68.
 THOMSON, A., and A. MILES.—*Manual of surgery* (vol. i, general surgery; vol. ii, regional surgery), fifth edition, 302.
 THOMSON, H. C.—*Diseases of the nervous system*, second edition, 234.
 TODD, T. W.—*Clinical anatomy of the gastrointestinal tract*, 140.
 WALLACE, J. S.—*Dental diseases in relation to public health*, 67.

REVIEWS (*continued*)—

- WHITAKER, C. R.—Manual of surgical anatomy, second edition, 303.
- Year-book of the scientific and learned societies of Great Britain and Ireland, 69.
- Yellow fever bureau bulletin, supplement vols. i and ii, 231.
- Scatophaga stercoraria*, 16.
- School-cliniques, aural. J. K. Love, 101.
- Septicæmia due to micrococcus tetragenus, 77.
- Septum nasi, irregularities of, in deafness, 184.
- Sera in treatment of gas gangrene, 254.
- Serum therapy in poliomyelitis, 306.
- Skull, fissure fracture of vault of, in new-born, 157.
- Sleeping sickness, tsetse-flies in, 16.
- Spinal fluid, sugar content of, in meningitis, 236.
- Stable fly, 14.
- Staphylococcus in pyuria, 171.
- Statistics, Glasgow meteorological and vital, 80, 160, 240, 312, 376, 430.
- Stomach, hysterical. A. E. Maylard, 25.
- α -rays in hour-glass, 78.
- contents, irregular ejection after gastro-enterostomy, 316; treatment, 329.
- Stomoxys calcitrans*, 14.
- Streptococcus pyogenes in pyuria, 171.
- Suprapubic prostatectomy under local anæsthesia, 428.
- Surgery, minor points in major, 156.
- SYME, W. S.—Nasal affections and deafness, 177.
- TABES mesenterica, neurasthenia in, 91.
- TEACHER, J. H., and A. W. HARRINGTON.—Sub acute anterior poliomyelitis, 331.
- Tetragenus meningitis, 76.
- septicæmia cured by colloidal silver, 77.
- Tongue, sign of, in typhus fever, 427.
- Towns-Lambert treatment of drug addiction, 196.
- Transfusion from mother to infant, 370.
- Trauma, local, in etiology of gastric ulcer, 382.
- Triplets, eclampsia in case of, 269.
- Trypanosoma gambiense*, 17, 19.
- rhodesiense*, 19.
- Trypanosomes, transmission of, from fly to man, 21.

- Trypanosomiasis, 16.
- Tsetse flies in trypanosomiasis, 16.
- Tubercle bacillus in pyuria, 168.
- Tuberculosis of bladder, 169.
- kidney, 169.
- pulmonary, complement-fixation in diagnosis of, 235.
- pyuria in renal, 277.
- sinuses, note on the treatment of. C. Bennett, 107.
- Turbinates, hypertrophy of, in deafness, 182.
- Typhoid fever, house-fly in spread of, 9.
- Typhus fever, "sign of the tongue" in, 427.
- ULCER, gastric, etiology and treatment of. H. Morton, 377.
- Urinary tract, septic infection of, 163.
- Urine testing with Esbach's albuminometer: source of error discussed. H. E. Jones, 31.
- Uterine carcinoma, heat in treatment of, 310.
- Uterus, abortion in a double, 267.
- etiology of prolapse, 309.
- origin of lower segment, 310.
- retroflexion of gravid, case, 260.
- with pernicious vomiting, 262.
- rupture of a pregnant diverticulum. A. N. McLellan, 390.
- unusual degeneration of cervix, 71.
- VACCINES in gas gangrene, 253.
- Vernon Harcourt chloroform inhaler, series of 800 cases. H. P. Fairlie, 396.
- advantages and disadvantages, 405.
- Vibrio septique* in gas gangrene, 245.
- Vomiting of pregnancy, 261, 262, 263.
- WEINBERG, M.—Gas gangrene in the present war, 241.
- Wounds, septic, treated with ichthyl and glycerine, 237.
- standardised treatment of, 237.
- X-RAYS, inhibitive effect on malignant growths 78.
- in hour-glass stomach, 78.

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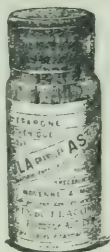
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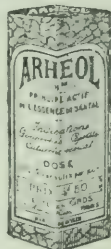
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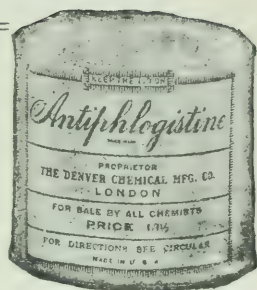
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